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a proposal for the inhabitation  
of space.

# a proposal for the inhabitation of space...

or how to put more stuff in less space.

Mark D. Jewell  
A.B., Architecture, 1996  
University of California, Berkeley.

Submitted to the Department of Architecture in Partial Fulfillment of the Requirements for the Degree of Master of Architecture at the Massachusetts Institute of Technology, February 2001.

Signature of Author:.....

Mark D. Jewell  
Department of Architecture  
January 19, 2001

Certified by:.....

Paul Lukez  
Assistant Professor of Architecture  
Thesis Advisor

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Accepted by:.....

Roy Strickland  
Principal Research Scientist in Architecture  
Chairman Departmental Committee on Graduate Students



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**Thesis Committee**

Paul Lukez  
*Assistant Professor of Architecture*  
*Thesis Advisor.*

John E. Fernandez  
*Assistant Professor of Building Technology*  
*Thesis Reader.*

Andrew Scott  
*Associate Professor of Architecture*  
*Thesis Reader.*

**Submitted by**

Mark D. Jewell, Department of Architecture.

**Thesis Advisor**

Paul Lukez, Assistant Professor of  
Architecture.

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# a proposal for the inhabitation of space...

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Submitted to the Department of Architecture in Partial Fulfillment of the Requirements for the Degree of Master of Architecture at the Massachusetts Institute of Technology, February 2001.

**abstract**

This thesis is based on the premise that a need exists for the densification of our existing urban centers. The investigation then becomes how to put more stuff in less space. The objective, however, is not a technical optimization exercise, but rather the pursuit of a palatable set of ideas that enable densification. This presupposes an essential net gain from the trading of personal space for 'architectural value.' Consequently, the thesis is a quest for alternate processes that will lead to unconventional built form. The project outlines a set of episodes that attempt to abstract or develop criteria that can then be executed in the creation of more compact and rewarding environments. Each episode has its own focus and a limited dependency on the criteria of the others.

*Episode01* proposes a redistribution of 'already claimed space.' What formal language will emerge from a simple exercise in displacement? *Episode02* is an attack on object-architecture as a means to diversify our formal palette. This exercise



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attempts to avoid our inclinations towards a disposable built environment by generating new form that is conscious of its context. Must the city be composed of architecturally preconceived extrusions? *Episode03* assumes the existing urban ground plane to be near its capacity. Therefore, a new 'constructed landscape' is offered within existing environs as a means to liberate a burdened fabric while nurturing an eventually more dense system. What are the formal qualities of a public network needed to support the landscape? How does this armature receive programmatic bits over time? *Episode\_n* attempts to explore directly the interaction of the ideas abstracted from the first three episodes. What is the logic that binds these tools together? Furthermore, *episode\_n* is interested in the interaction of these new tools with a more traditional design sensibility.

The questions provoked by each episode lead to formal strategies that have very real architectural implications. How can these begin to work together to create value that outweighs the reduction of personal space?

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# acknowledgments

for my wife to be, jennifer, who is always questioning and provoking, and caring. together for six years now we have traveled this path...and still, it is unclear where it leads. I know only that it is with her and for that I am grateful. for her undying love and support I am forever indebted.

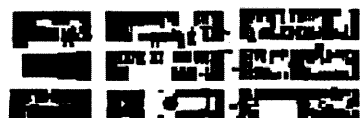
for my father, a firm believer in hard work, who through example has shown me to always push harder when things became difficult...who's work ethic has driven me to believe that anything is attainable. I will continue to work...



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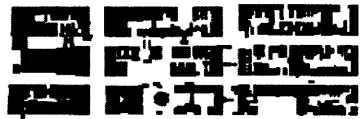
# **i**ntroduction

How do we actually begin to densify our cities if that becomes part of our agenda? What are the rules that govern our actions and where do they come from? What formal language will emerge from the compaction of existing urban fabric? How do we appease the stigma associated with density and over-crowding? These are the questions that propel the following investigations.

This thesis has been met with a range of response. Most query why we would want to make cities more dense. While this thesis is not directly interested in 'the why' of densification, it is not completely free of such reasoning and accountability. Therefore, the following sections attempt to encapsulate the thoughts and frustrations of a process that became much more absorbed in 'the how' of densification.

## **history**

This thesis began as an exploration into adaptive re-use. However, the author's interest in this idea was a bit naive and lacking foundation. The general tendency to discard our built shortcomings and start anew seemed to frame the research. Furthermore, the economic inadequacies of current adaptive reuse projects seemed to limit conceptual exploration beyond the current live/work phenomenon. The investigation focused on what adaptive reuse could be. While conceptually necessary, the



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ideas were actually limiting needed growth. The proposed re-occupation of an abandoned warehouse shell would satisfy only short-term resource sensibilities. While the reuse of existing buildings is an essential first step; recycling needs to recognize the unyielding growth of our cities. Thus, a greater urban reoccupation can be sought as a way to reuse entire cities.

The densification of our urban centers is a controversial topic upon which abundant theory and text has been generated. Anti-sprawl writings warn of unforeseen environmental and social consequences as a result of our tendency to spread out. And of course it is emergent technologies and increased personal mobility that continues to make it all possible. Consequently, there are also numerous texts that refute the possible benefits of creating more compact environments. Arza Churchman insists that “there is no consensus as to whether the notion of the compact city is desirable, achievable, or even whether it is a sustainable urban form.”<sup>1</sup> What is missing from the theory for this author is actual material gain. That is, a modern urban thinker is left only with ‘the why’ or ‘why not’ of an urban strategy. Notions of ‘how’ are scarce and limited. In order to test our theories, we must try them. How do we actually begin to densify our cities if that becomes part of our agenda? What are the rules that

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<sup>1</sup> Churchman, Arza. “Disentangling the Concept of Density”. Journal of Planning Literature v.13, n.4 (May 1999): 394.

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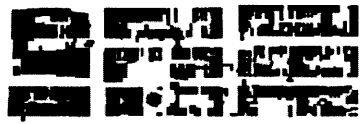
govern our actions and where do they come from? This thesis is not interested in 'the why' or 'why not' of densification. To seek facts and statistics is to continue to remain static and mediocre. Rather, this thesis attempts to provoke ideas that explore 'the how.'

### **Preconditions**

There are two existing preconditions that should be noted at this point. The first is that this thesis is reactionary towards the american tendency to 'wipe the slate clean' within our current economic model. It is the author's intention to seek new ways of negotiating the conflict between the old and the new - one does not preclude the other. The second is to reinforce that this thesis is not a technical optimization exercise. Necessity demands that an exercise in densification yield environments with a net gain in 'architectural value.' That is, a trade must be realized that supplements the sacrifice of less personal space with a rewarding urban enterprise.

Consequently, this thesis has become a search for alternate modes of creation and their subsequent form. A suspension of conventional design technique allows ideas to look beyond their current limitations. As a designer, this author is still dependent upon conventional processes; however, this thesis seeks supplemental tools and criteria that can be implemented collectively as needed to encourage the creation of





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**premise:** a proposal for the  
inhabitation of space.

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## **p**remise

Our pursuit of a more globally sustainable environment demands that projects which resist the consumption of land and resource be brought to the forefront. James Kunstler proclaims that as Americans “ever-busy, ever-building, ever-in-motion, ever-throwing-out the old for the new, we have hardly paused to think about what we are so busy building, and what we have thrown away.”<sup>2</sup> To this end we must continue to probe our value system. What is it within our social framework that drives us from one another and compels us to squander our precious landscape. This thesis will begin to question the use of space in our contemporary cities. Within the metropolis there is both the urban and suburban. A general strategy of densification is adopted as a means to inhibit the outward growth of our cities. The adaptive reuse of space is offered in place of sprawl. Space is conceived of as both the built and unbuilt landscape and should not be interpreted as land. This exploration will continue to build upon two root agendas: The first one is the need to slow the consumption of the earth’s resources. The second agenda attempts to reinterpret and mend our failing social fabric.

Our modern world is consuming precious resources at an alarming rate. However, it is the consumption of the land that most affects how we live today and will live tomorrow.

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<sup>2</sup> Kunstler, James Howard. The Geography of Nowhere; The Rise and Decline of America’s Man-made Landscape. (New York: Touchstone, 1993) 18.

**figure 001**

*levittown, new york: aerial photograph, c1947 - the birth of sprawl.*

row. Sprawl is not a new cause. The destructive forces are ever present. Newly occupiable *land* continues to force bigger roads, more massive infrastructure, and an excessive number of personal transportation units. Alternately, simple compactness is not the solution. Already dense areas are handicapped by tremendous strain on existing infrastructure. A model for densification must reassess the effectiveness of underlying systems, i.e. arteries, roads, and corridors. Therefore, a multi-dimensional compactness that includes formal, human, and temporal ideas is proposed. Both the existing urban condition and its necessary growth are accepted. This is prerequisite if change is to be induced. This densification must actuate growth while limiting the consumption of our land and its natural resources. Occupiable *space* becomes our objective.



Furthermore, our social fabric is suffering at the expense of our limitless consumption of the land. The human quest for personal space is a concern. Can we continue to live within an "I-got-mine" mindset? In exchange for a piece of the earth, man continues to surrender his/her communal relations. People are physically distant from one another as a result of their attachment to individual achievement. It is our preoccupation with individuality that threatens our capacity for social exchange. This thesis proposes social compromise manifest in the growth of our tolerance and acceptance of one another. The project will compress personal space and rely on typological cross-pollination to reactivate our social condition. This urban endeavor must be a

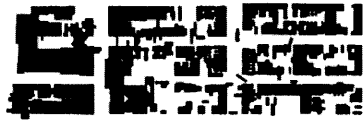
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catalyst for community and encourage human interaction.

The fulcrum of this tactical effort will be the urban center. The suburban – edge city – condition is left to mature in favor of a full frontal assault on existing density within the city. The limitless persistence of sprawl is acknowledged. A suburban attack would exacerbate already volatile circumstances and potentially lead to constructed banality. Its aggression would drive inhabitants elsewhere in search of more secure land. Rather, an amplification of already dense areas is more digestible if our goal is to actuate change. The extent of our centers is varied; however, within the center there is abundant space. There is underutilized space above, between and often within existing constructs. Existing form as we know it shall be our host. Furthermore, this thesis will encourage a disassociation of space and land. Neither precludes the other. Space is both built and unbuilt. Urban densification will resist the natural and wasteful tendency to start anew. Rather, the adaptive reuse and reclamation of space shall be its device.

### **Context**

The time and place of this proposal is framed by four social phenomena: 1. There is increasing human isolation in our contemporary world. People are both physically



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and socially more distant from one another. 2. The organization of our modern world is becoming more blurred as we rely less on its traditional compartmentalized structure. 3. Our communities are becoming more placeless. 4. The dissemination of environmental awareness is becoming more effective.

The complexity of our world is overwhelming. Its perception demands editing and often introversion. Accordingly, our social structure has placed much value on “personal time” and “personal space.” The emerging electronic milieu compounds the crisis by further removing the need for human exchange. However, as social creatures, there remains a thirst for community. Arnold Reijndorp and Vincent Kompier of MVRDV feel that it is “the multiplicity of lifestyles combined with the increase of individualism and self realization [that] is forcing the community aspect into the background.”<sup>3</sup> How then does one begin to edit without compromise? It can not be done. Our existing value structure must evolve as a result of its physical metamorphosis. Our preference for personal space must be malleable. An alternate model for living is the goal. Resisting the tendency towards human isolation provokes a reinterpretation of personal space. Compaction must be tempered with an understanding of behavior and perception.

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<sup>3</sup> MVRDV. FarMax. (Rotterdam: 010 Publishers, 1998) 68.

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The distinctions between live, work, and play are becoming fuzzy. More people are working at home and living at work than ever before. Furthermore, each activity must carry with it substantial entertainment value to merit attention in a society plagued with self-gratifying ambition. Why then do we maintain physical boundaries between these fields? Why should the physical world champion clarity when its social structure has long since abandoned its ideals? A reevaluation of this compartmentalized structure demands a shift in our understanding of typology and form making. Bernard Tschumi argues that “there is no cause-and-effect relationship between the concept of space and the experience of space, or between buildings and their uses.”<sup>4</sup> An attack must also be made on those institutions which resist the physical blurring of our built world. Corrupt planning policy and low-risk economics are the primary adversaries. To what extent can architecture play a role in the making and remaking of cities? Our strategy shall be proactive.

The presence of community is becoming more challenged both in our cities and their edge cities. Kunstler notes that “we have become accustomed to living in places where nothing relates to anything else, where disorder, unconsciousness, and the

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<sup>4</sup> Tschumi, Bernard. Architecture and Disjunction. (Cambridge, Ma: The MIT Press, 1996) 16.



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absence of respect reign unchecked.”<sup>5</sup> For example, our society is often identified by its patterns of consumption. These patterns are more in flux now than ever. Shopping, once a social activity, is now seen as a task to be endured within our complex lives. Online purchasing and virtual gathering threaten our social institution. We now live in a world where the real is not a necessary experience. In addition to the growth of e-commerce and virtual chat rooms, people are now even buying their groceries on line and having them delivered right to their doors. The placeless community is our concern. A social reactivation is our goal.

A growing environmental awareness is an immediate offspring of a better-educated public. Most recognize our habits as self-destructive, but are not willing to compromise their inherited value system. Therefore a global understanding of our deteriorating environmental condition is not the primary issue. Our concerns are the socio-economic and political obstacles preventing the realization of necessary measures. Personal action must begin to render the whole. It is the struggle between a collective responsibility and personal consumption that will be the battleground of future generations.

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<sup>5</sup> Kunstler. 185.

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### **typology**

It is important to briefly touch on the idea of typology. As this thesis has become a search for alternate urban form, it is necessary to illustrate the norm that it is intended to deviate from. Eight cities from around the world (Amsterdam, Sao Paulo, Hong Kong, Mexico City, Phoenix, Los Angeles, Atlanta, and New York City) were given a cursory exploration (figures 002-009). These cities together represented the diversity of urban success and failure. The density of their fabric ranges from 2,342 persons/sq.mi. to 23,702 persons/sq.mi.<sup>6</sup> Their physical form is varied and derivative of ranging socioeconomic and geographic circumstances. However, their building blocks share typological similarities. The density of a given area is inversely proportional to the amount of earth its structures occupy. Each city employs the same urban strategy in terms of density. Where areas demand greater density (regardless of socioeconomic determinants), larger buildings are erected on smaller footprints. That is, taller buildings are extruded where once shorter ones existed. Each structure occupies a plot of land and is extruded from the ground to a height that satisfies the needed urban condition. While the grain of each city is noticeably different, the building blocks are similar (figures 010-017). Hence, this thesis intends to search for an evolving typological form by developing a new set of building blocks.

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<sup>6</sup> <http://www.demographia.com>.





**figure 002**  
amsterdam, netherlands: aerial photograph.

**figure 003**  
sao paulo, brazil: aerial photograph.

**figure 004**  
hong kong, china: aerial photograph.

**figure 005**  
mexico city, mexico: aerial photograph.



**premise:** a proposal for the  
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**figure 006**

*phoenix, arizona: aerial photograph.*

**figure 008**

*atlanta, georgia: aerial photograph.*

**figure 007**

*los angeles, california: aerial photograph.*

**figure 009**

*new york city, new york: aerial photograph.*



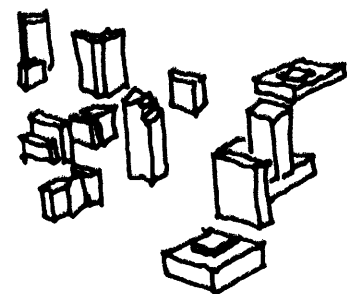
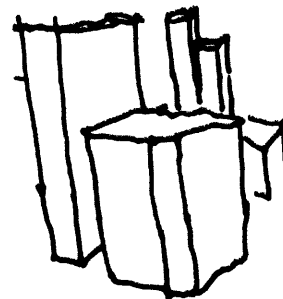
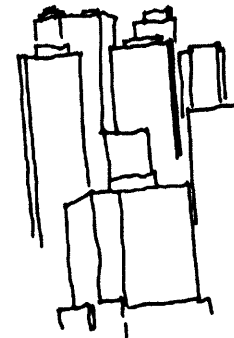
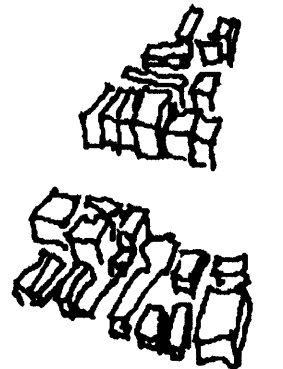


**figure 010**  
amsterdam, netherlands: abstraction.

**figure 011**  
sao paulo, brazil: abstraction.

**figure 012**  
hong kong, china: abstraction.

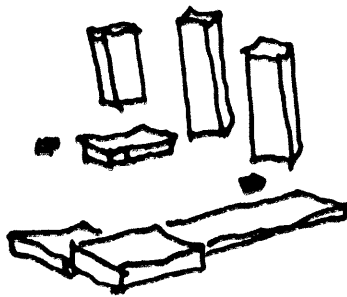
**figure 013**  
mexico city, mexico: abstraction.



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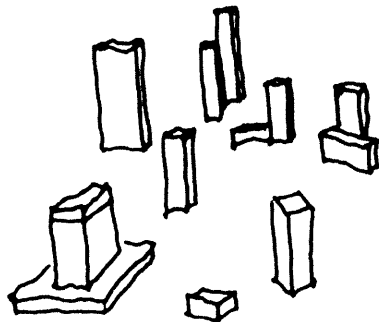
**figure 014**

*phoenix, arizona: abstraction.*



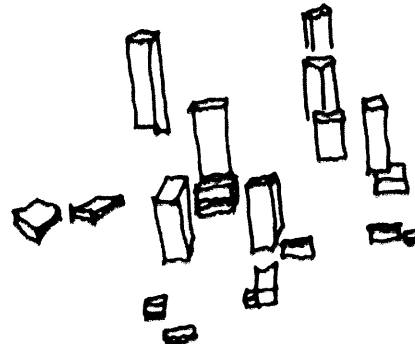
**figure 015**

*los angeles, california: abstraction.*



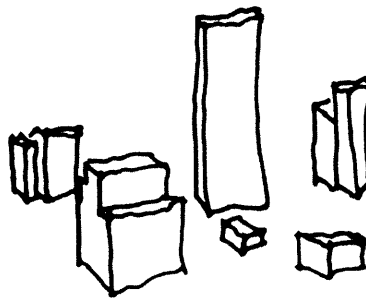
**figure 016**

*atlanta, georgia: abstraction.*



**figure 017**

*new york city, new york: abstraction.*





**figure 018**

*new york city: character photograph -  
w. 52nd. street between 9th and 8th avenue,  
view east.*



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## **site** manhattan, new york city.

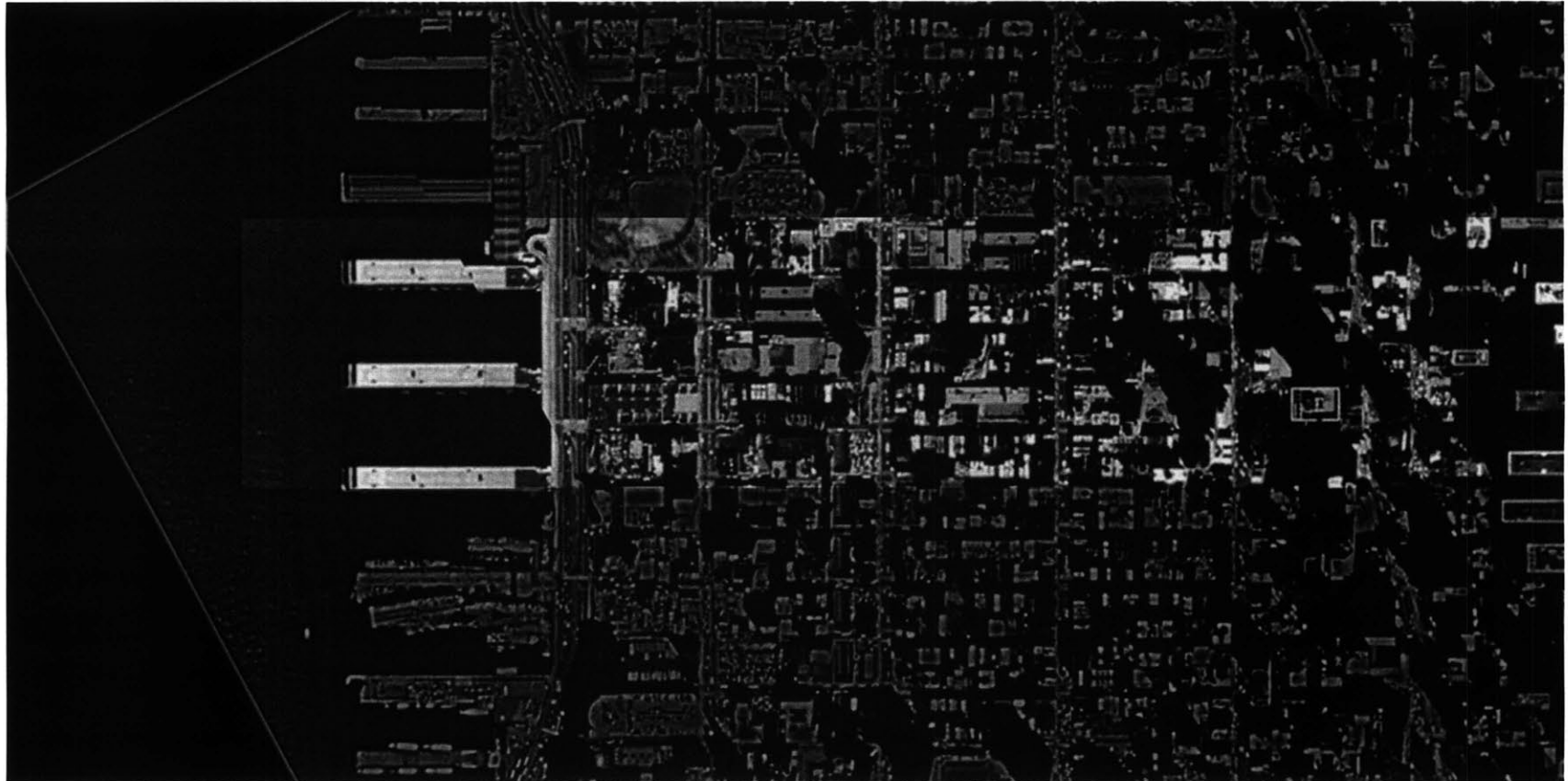
A slice of medium-density mid-town Manhattan (from the Hudson to the East River; between 48th Street and 53rd Street, see figure 019) is chosen as the host for the test case in an effort to reduce the number of variables. Manhattan holds within its boundaries the ideal circumstances (economic, geographic, etc.) for an eventual densification. So why is it not happening more rapidly? Modern technology no longer places restrictions on the buildability of necessarily dense sites. Highrise urban development is not restricted to bedrock. Perhaps our value system respects market value more than accelerated cohabitation. In our cities, dominant capitalist enterprise often reigns unchecked. Manhattan, like many other urban centers, owes its density to the natural edge conditions. Unlike Portland, Oregon where city policy mandates a strict urban edge, Manhattan is bounded by waterways on all sides. This thesis will utilize several pieces of the existing urban fabric. Only their physical condition and constraints are relevant at this point in time. The chosen sites will demonstrate a mixture of hi-rise, medium-rise and low-rise constructs. The mixture is crucial in illustrating a varied and misguided (non)strategy towards density. The high and medium-rise projects are chosen for their seemingly permanent and timeless appeal. To bring one of these giants down and start anew would be a flagrant waste. Furthermore, their underutilization of space within this prospering zone is deplorable.

Does the choice of program become critical? The general premise of densification accepts a project's place in time. It must recognize those projects before it and those



**figure 019**

*new york city: midtown manhattan slice -  
hudson river to east river; 48th street to  
53rd street.*



**site:** manhattan,  
new york city.







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that are still to come. The adaptive reuse of space implies the flexibility of space to be adapted or reclaimed. If we are to accept necessary growth and adaptation, then we are to assume that our program is without limits. Should it be flexible space? Most would retreat from the cliché. What does it mean to inhabit? to occupy? There will be an abundance of living, working, and playing. However, to propose an autonomous system would be to exclude our initial premise of social and physical connectivity. A balance is sought within the particulars of the site and time. Ultimately, a demonstrative program will be diverse in its pursuits in an effort to respond to the mush of our modern condition. Its quantitative and qualitative aspects will be extruded from the particulars of the site.

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## episodes thesis organization.

This thesis is organized into a set of episodes that attempt to develop and extract criteria and/or rules that can be implemented towards the creation of more compact and rewarding environments. Each episode has a focus or objective that may or may not relate to the others. These objectives are often reactionary against those urban elements suspected of limiting eventual densification.

*Episode01* proposes a redistribution of 'already claimed space.' What formal language will emerge from a simple exercise in displacement? *Episode02* is an attack on object-architecture as a means to diversify our formal palette. This exercise attempts to avoid our inclinations towards a disposable built environment by generating new form that is conscious of its context. Must the city be composed of architecturally preconceived extrusions? *Episode03* assumes the existing urban ground plane to be near its capacity. Therefore, a new 'constructed landscape' is offered within existing environs as a means to liberate a burdened fabric while nurturing an eventually more dense system. What are the formal qualities of a public network needed to support the landscape? How does this armature receive programmatic bits over time? *Episode\_n* attempts to explore directly the interaction of the ideas abstracted from the first three episodes. What is the logic that binds these tools together? Furthermore, episode\_n is interested in the interaction of these new tools with a more traditional design sensibility.



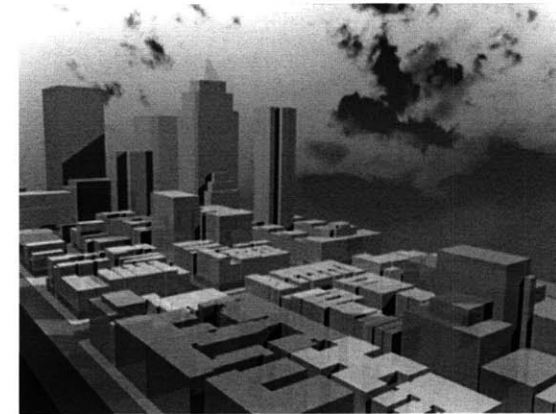
Each episode is then broken into a set of exercises (referred to as operations) that learn from one another in pursuit of results or conclusions. While these operations are often performed in the abstract, the final operation for each episode attempts to re-ground the investigations with a more architectural vocabulary. The 3d modeling used in this thesis utilizes the following color-coding: housing = bright-green, retail/commercial = dull-green, and public = brown.

**figure 020**

*episode01: site- digital model of nine-block area.*

**figure 021**

*episode01: site - aerial photograph of nine-block area.*



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## **episode01** redistribution of already claimed space.

The redistribution of 'already claimed space' is our point of departure. This notion presupposes an under-utilization of existing and available space. The goal is simply to discover pattern or clues through abstract exercises that target more compact relationships with minimal variables. These patterns or clues can then be extracted and reapplied to the existing urban fabric. Can an existing dense urban fabric support 2x or 3x the present density? what formal language will emerge from an exercise in displacement?

Operations a-d explore these notions in the abstract. That is, the kit-of-parts is limited to those forms found on site. Each reconfiguration attempts to answer a question or questions brought to be during the previous operation. As a consequence, each operation 'learns' from those that preceded it.

Operations i-k exploit the pattern or clues extracted from operations a-d by applying them to the existing fabric. operation k intends to dismiss notions of the abstract and re-ground our investigations through a more architectural vocabulary.

*Variables:* location [x,y,z] and orientation of existing unit blocks [housing, retail/ commercial, public].

*Mechanism:* displacement [x,y,z] and rotation.

### **Site**

the site for episode01 is chosen for its diversity in density, program, and built form.

**figure 022**

*episode01: site photograph - w. 49th. street  
between 8th avenue and broadway, view  
east.*

**figure 023**

*episode01: site photograph - w. 49th. street  
between 9th and 8th avenue, view north.*

**figure 024**

*episode01: site photograph - 9th avenue at  
w. 50th. street, view north-east.*

**figure 025**

*episode01: site photograph - w. 51st. street  
between 9th and 8th avenue, view east.*



**episode01:** redistribution of already  
claimed space.

**figure 026**

*episode01: site photograph - 10th avenue at  
w. 51st. street, view north-east.*

**figure 027**

*episode01: site photograph - 10th avenue at  
w. 51st. street, view north-east.*

---



**figure 028**

*operation.a: public links - linear distribution of public spaces.*

**figure 029**

*operation.a: shadow-massing - tendency for accumulation of small and medium blocks.*

**figure 030**

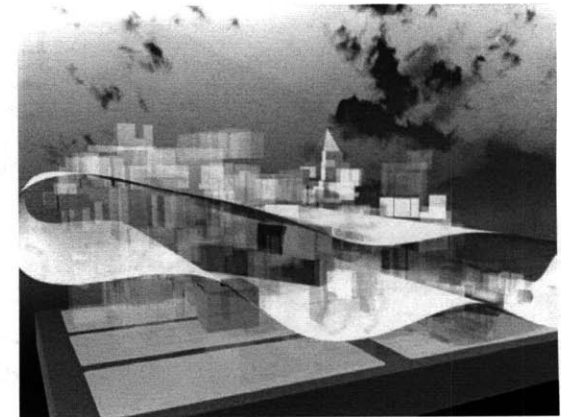
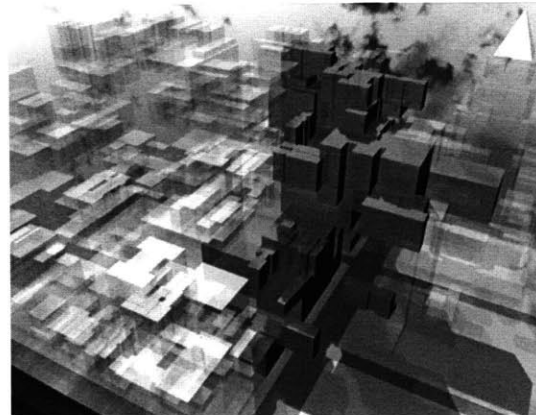
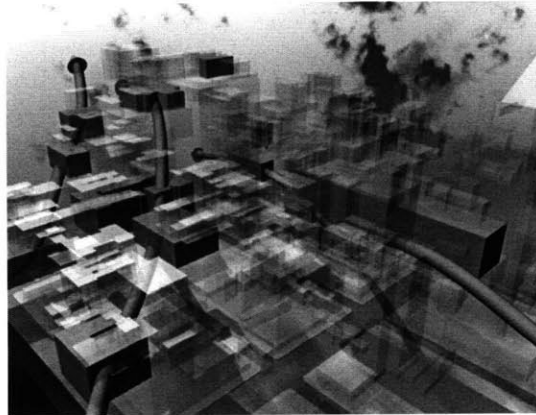
*operation.b: public middle-ground - accumulation of public spaces.*

the site is bounded by tenth avenue to the west; Broadway to the east; w. 52nd to the north; and w. 49th to the south (figures 020-027).

### **Operation.a**

*Mechanism:* random [subjective] redistribution of existing nine-block area. All pre-conceived pattern was dismissed allowing placement of forms based on a personal desire for light and ventilation. Using the maximum height of the existing forms as the development cap, each unit [housing, retail/commercial, public] was redistributed into a more compact configuration.

*Consequences:* 1. tendency towards even distribution of public forms. 2. perceived linear linkage between public forms (figure 028). 3. reluctance to move

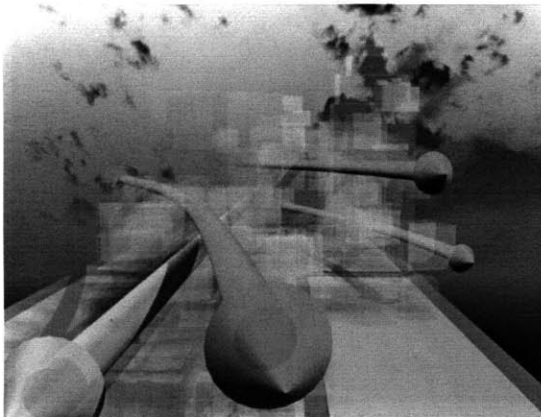


**figure 031**

*operation.b: cross-grain - emergence of true n-s grain.*

**figure 032**

*operation.c: cross-grain - testing of true e-w grain.*



large existing forms due to height limit and available ground space. 4. tendency for small and medium forms to accumulate in the 'shadow zone' of existing large forms in the n-s direction [shadow massing] (figure 029).

**Operation.b**

*Mechanism:* redistribution of existing nine-block area. Learning from operation.a, initial displacements focus on the construction of public linkages or linear relationships of public forms. Furthermore, the preceding notions of 'shadow massing' are consciously exploited while introducing new displacements in the form of rotation. Using the maximum height of the existing forms as the development cap, each unit [housing, retail/commercial, public] was redistributed into a more compact configuration.

*Consequences:* 1. emergence of a distinct cross-grain in the true north-south direction (figure 031) as a further refinement of 'shadow massing.' 2. unit rotation reinforces this emergence. 3. public forms inherit law of probability as it relates to random vertical displacement [i.e., once unbound to the existing ground plane there exhibited a tendency towards a vertical convergence within our middle-ground zone] (figure 030).

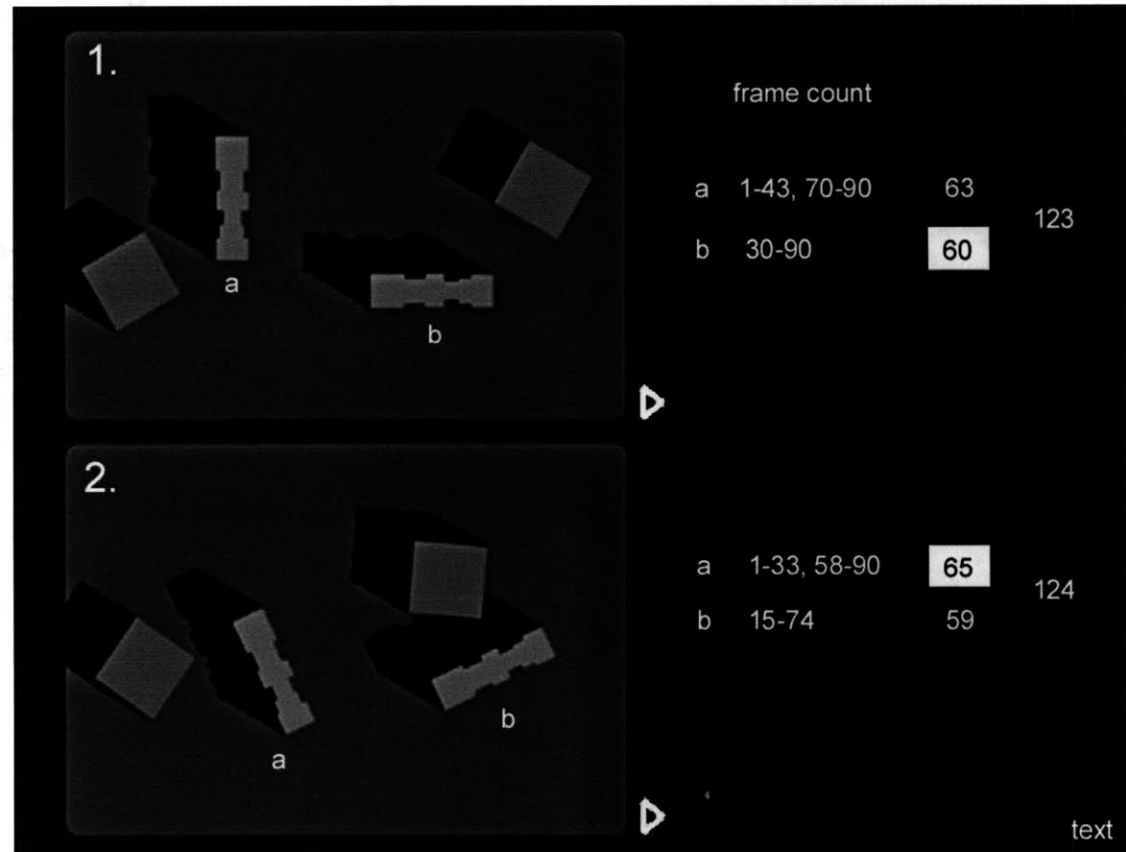
**Operation.c**



**figure 033**

*operation.c: detour - light exposure  
performance comparison.*

*Premise:* testing of emerging cross-grain in a true east-west direction (figure 032). *Mechanism:* redistribution of existing nine-block area. Operation.c enacts a performance comparison of a deliberate east-west grain Vs. the north-south grain of operation.b. By applying pattern from operation.a, initial displacements focus on the construction of public linkages or linear relationships of public forms. The preceding notions of 'shadow massing' are once again consciously exploited while introducing rotation. Using the maximum height of the existing forms as the development cap, each unit [housing, retail/commercial, public] was redistributed into a more compact configuration. *Consequences:* 1. no apparent improvement over the results of operation.b. 2. need to evaluate quantitative benefit for emerging cross-grains [north-south +



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east-west]. See *detour*.

*Detour.* frame-by-frame lighting analysis of two abstract models. Each model consists of two random housing units [rotated 90° from each other] and a square widget skewed 30° from the unit axis (figure 033). The first model places the units on the existing manhattan grid [approx. 25° e. of w.] the second model places the units on a true north-south grid. The square widget is a graphical indicator of our analysis's *angle of incidence* limit. It has been assumed that as the angle of incidence drops below 30°, there is a dramatic decrease in the qualitative light entering a given space from the respective surface fenestration. The focus becomes a standardized 'long edge' of a given unit. It is assumed that our model has no width or depth and that the standardized long edge can receive light from either side. We are interested in the percentage of a day that our standardized edge surface receives direct light within our geometrical parameters. Each model then has two standardized long edge surfaces...one in a more north-south direction and one in a more east-west direction. A frame-by-frame analysis of a given day [08:00-19:00] produces a frame count [convertible to a percentage of a day] for each unit of each model. See *detour* diagram for frame count. The analysis yields a preference for long standardized edge surfaces on a true north-south axis and for those on the manhattan east-west axis. Furthermore, since the true north-south surfaces receive two sets of frame counts...one in the morning and one in the late afternoon/evening, it can be inter-

**figure 034**

*operation.d: small + medium + large -  
flexibility of small and medium size forms.*

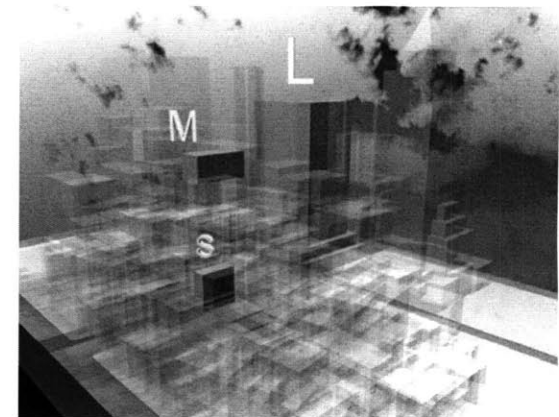
preted as the ideal surface orientation for housing units where occupation in the morning and evening is dominant. Consequently, the manhattan east-west surfaces are ideal for retail/commercial and public uses, i.e., those that exploit the middle of a given day.

### **Operation.d**

*Premise:* test the dependence of small, medium, and large units upon one another for the configuration of a compact environment.

*Mechanism:* redistribution of existing nine block area into 3 segregated east-west zones. Each zone is assigned a range of unit sizes [small,medium,large] based on subjective identification. To the extent that it is possible, the pattern criteria from the preceding operations is reapplied. Using the maximum height of the existing forms as the development cap, each unit [housing, retail/commercial, public] was redistributed into a more compact configuration.

*Consequences:* 1. Small and medium size forms are more flexible in their displacements and are less demanding on adjacencies [contextual ramifications related to light and ventilation] than their large counterparts (figure 034). This is intuitively consistent with abstract notions of compaction...such as the material properties of concrete and its dependence on different sized aggregate.

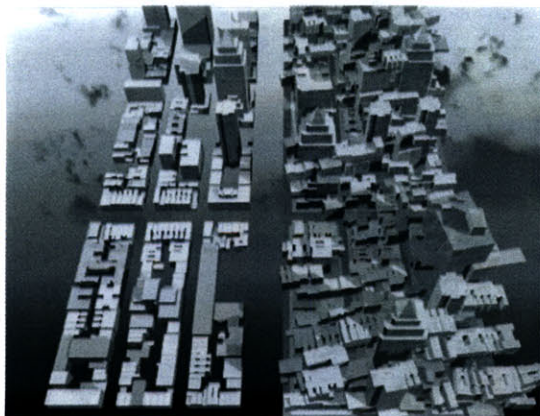
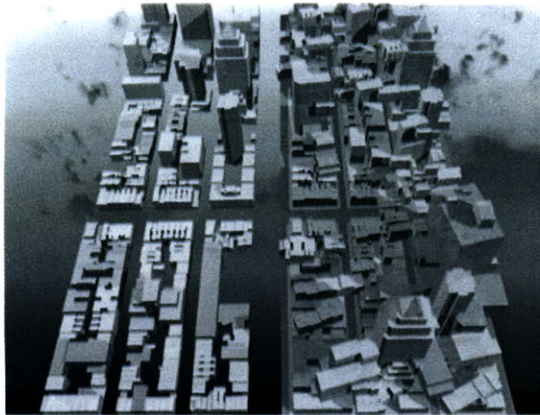


**figure 035**

operation.i: density\_2x - existing site on left;  
density double on right.

**figure 036**

operation.j: density\_3x - existing site on left;  
density tripled on right.

**Operation.i**

*Mechanism:* addition of an identical nine block area that doubles the existing density [ $r_{tot}=2x$ ] (figure 035). Initial additions focus on the construction of public linkages or linear relationships of public forms within a vertical middle ground. the notions of shadow massing are once again consciously exploited while introducing rotation. The true north-south grid is exploited through the addition of primarily housing. Similarly, the manhattan/east-west grid becomes the armature for most retail/commercial and public forms [these ideas come from our detour in operation.c]. Using the maximum height of the existing forms as the development cap, each unit [housing, retail/commercial, public] is distributed into a compact configuration that is conscious of the existing fabric.

*Consequences:* 1. Based on a simple formal exercise in displacement and rotation, it is clear that the existing urban fabric can support an environment that is twice as dense. However, for now our conclusions rely on the addition of an identical grain size to that existing on the site.

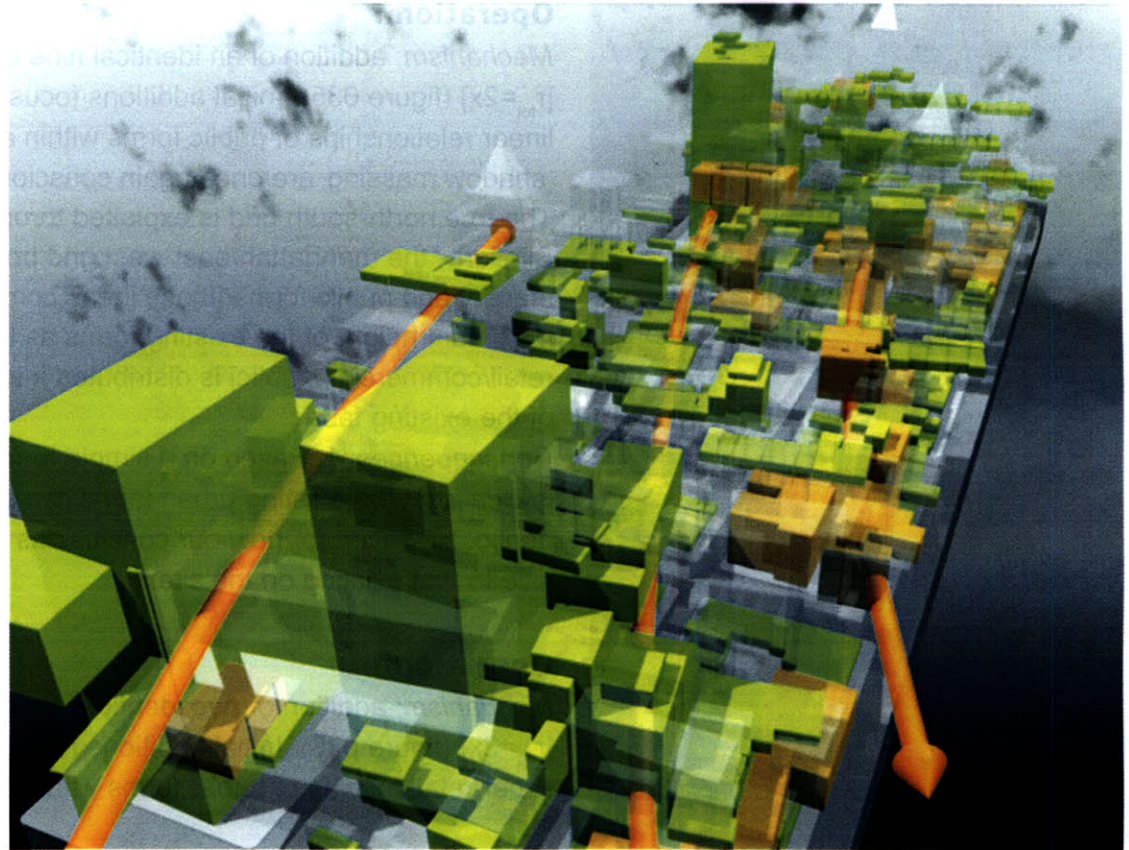
**Operation.j**

*Mechanism:* addition of **two** identical nine block areas that triple the existing density [ $r_{tot}=3x$ ] (figure 036). Initial additions focus on the construction of public linkages or linear relationships of public forms within a vertical middle ground (figure 039). the



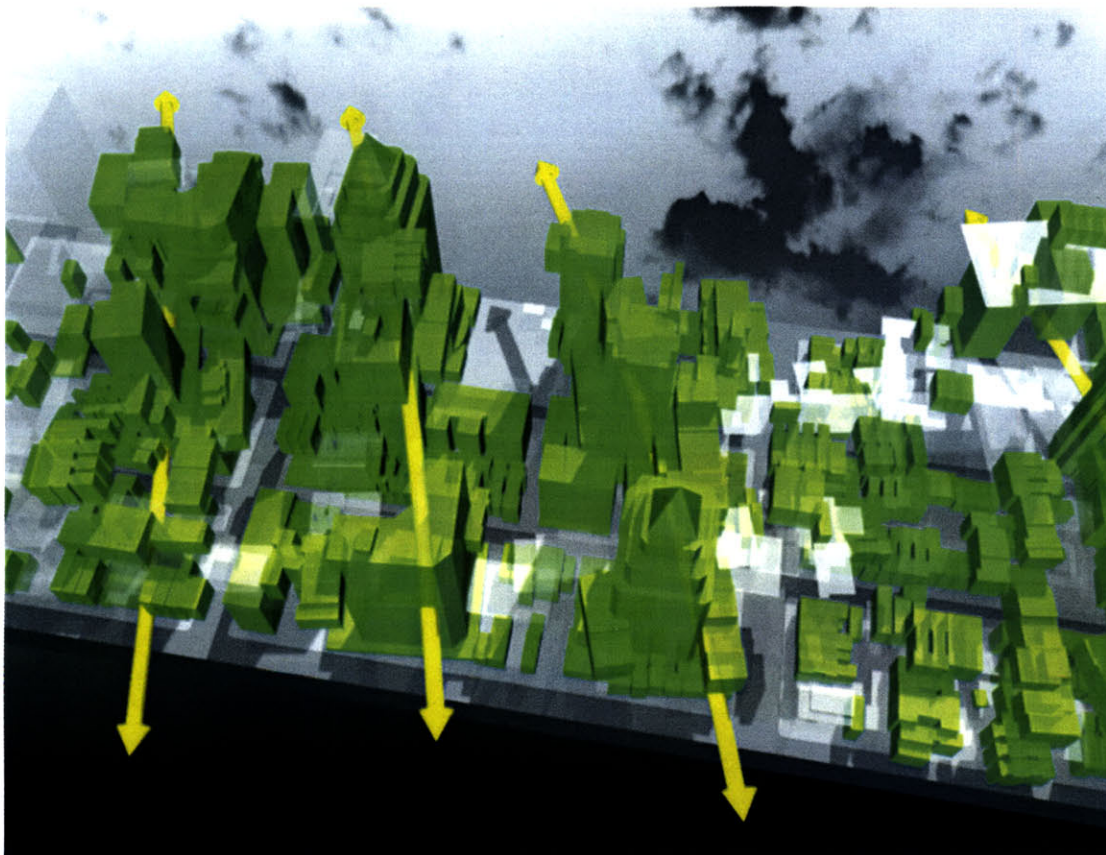


**figure 037**  
*operation.j: e-w grain - orientation of public  
and commercial forms.*



**figure 038**

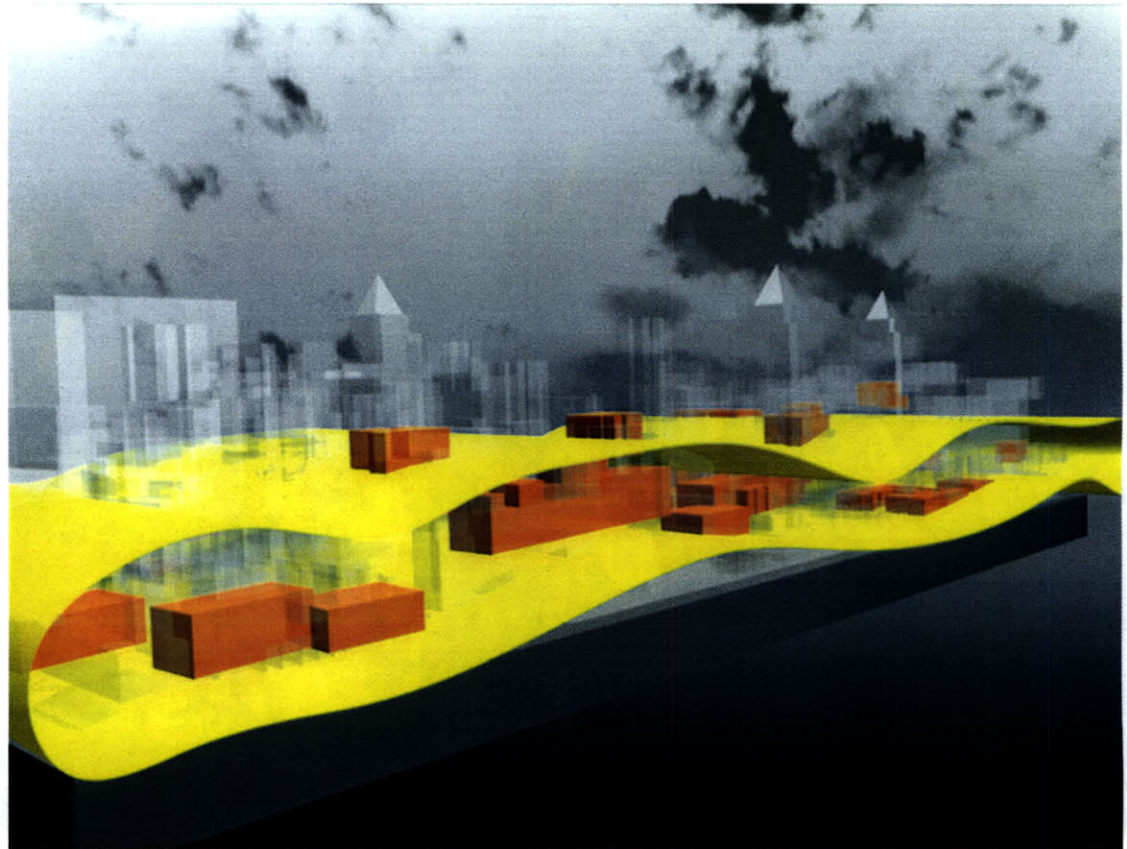
*operation.j: n-s grain - orientation of  
housing forms.*





**figure 039**

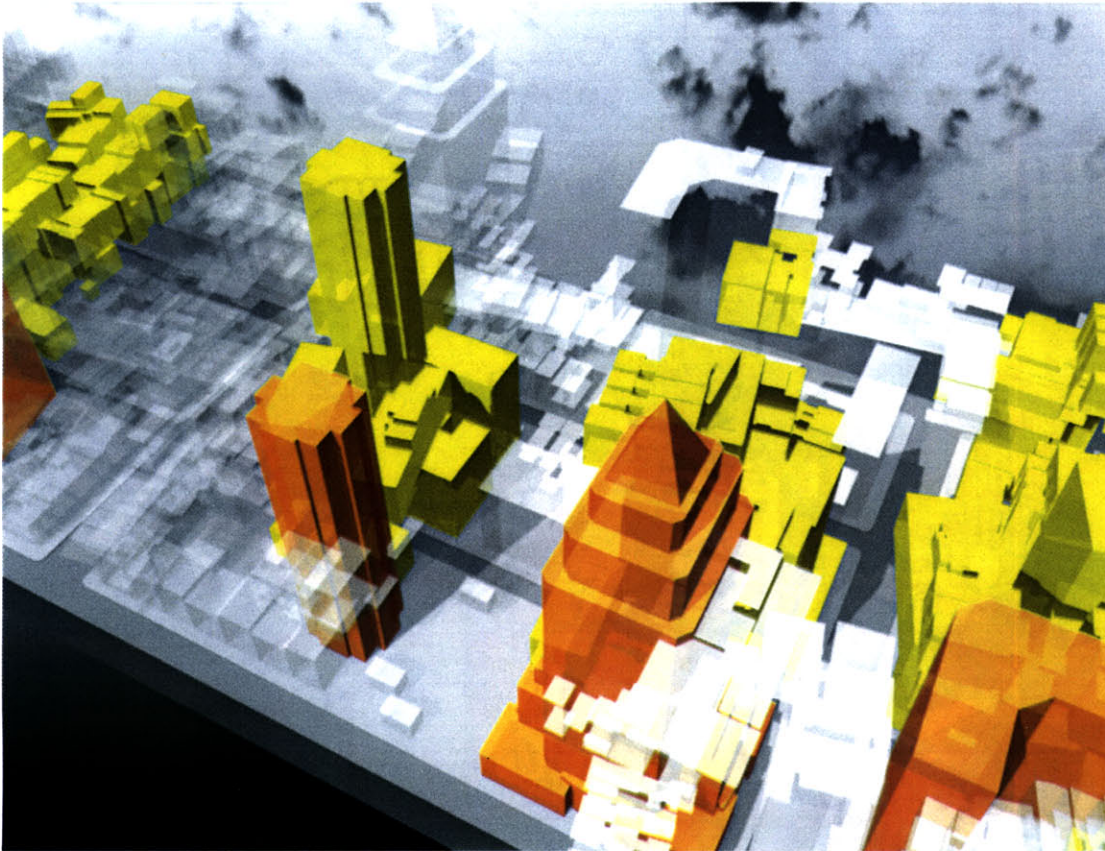
*operation.j: public middle-ground -  
accumulation of public spaces shown in orange.*





**figure 040**

*operation.j: shadow-massing - tendency for  
accumulation of small and medium blocks.*





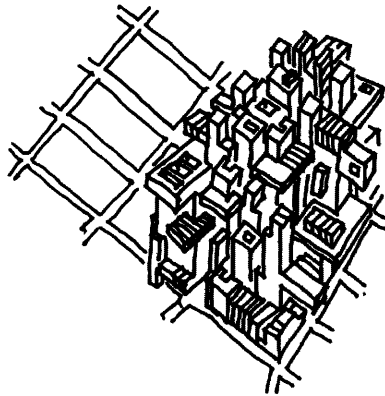


**figure 041**

*operation.k: left, architecture - re-introduction of materiality and human scale through collage.*

**figure 042**

*episode01: initial idea sketch.*



notions of 'shadow massing' are once again consciously exploited while introducing rotation (figure 040). The true north-south grid is exploited through the addition of primarily housing (figure 038). Similarly, the manhattan/east-west grid becomes the armature for most retail/commercial and public forms [these ideas come from our detour in operation.c] (figure 037). Using the maximum height of the existing forms as the development cap, each unit [housing, retail/commercial, public] is distributed into a compact configuration that is conscious of the existing fabric. Refer to diagrams for illustrations of the preceding concepts.

*Consequences:* 1. Based on a simple formal exercise in displacement and rotation, it is clear that the existing urban fabric can support an environment that is three times as dense. However, for now our conclusions rely on the addition of an identical grain size to that existing on the site.

**Operation.k**

*Premise:* intent to dismiss notions of the abstract and re-ground our investigations by implementing a more architectural vocabulary.

*Mechanism:* collage. Existing site instances are imported and applied to the surfaces of the result model from operation.j.

*Consequences:* 1. The re-introduction of materiality and human scale reveals an intensified and convincing urban condition (figure 041). 2. The emergence of a semi-

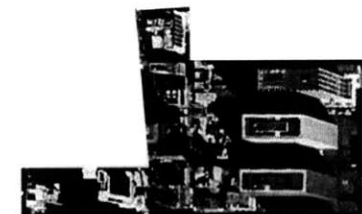
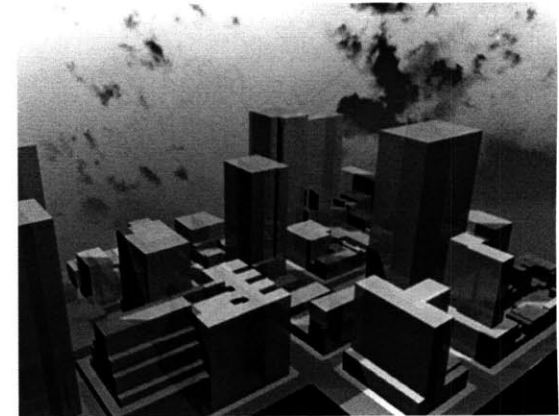


**figure 043**

*episode02: site - digital model of area  
incorporating three most eastern blocks from  
episode01.*

**figure 044**

*episode02: site - aerial photograph of area.*



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## **episode02** zones of potential optimization.

The pursuit of an expanded vision of built form in the city frames this episode. An attack on object-architecture is prescribed as a means to diversify our formal palette. Must the city be composed of architecturally preconceived extrusions? This exercise attempts to circumnavigate traditional constructs by explicitly avoiding our inclinations towards a disposable built environment. Rather, of primary interest is an abstraction of those 'under utilized' zones without discarding existing built form.

The question then becomes one of appropriate zones and their accountability towards the existing fabric. The 'object' of our investigation is the negative. Sculpting is our mechanism. Because this episode attempts to exploit the third dimension in a more rigorous and unpredictable way, the 'plan' is temporarily abandoned. Consequently, our investigation attempts to fully exploit the 'section' through an abstract division of the site into 9 slices [negative slices].

Operation.tools introduces primary mechanisms that begin to define these underutilized zones. These mechanisms are then implemented on each slice in isolation and ultimately reunited to reveal unexpected formal potential.

Operation.architecture completes the episode. Discovered proximities and adjacencies are exploited through a layer of architectural consequences that are inherently conscious of the existing urban fabric.

*Variables:* solid + void.

*Mechanism:* subtraction.





**figure 045**

*episode02: site photograph - 6th avenue at w. 51st. street, view west.*

**figure 046**

*episode02: site photograph - w. 49th. street between 7th and 6th avenue, view south.*

**figure 047**

*episode02: site photograph - 7th avenue at w. 48th. street, view north-east.*

**figure 048**

*episode02: site photograph - broadway at w. 50th. street, view east.*



**figure 049**

*episode02: site photograph - broadway at w. 51st. street, view east.*

**figure 050**

*episode02: site photograph - broadway at w. 49th. street, view west.*



**figure 051**

*operation.tools: elevation, typical negative slice - single slice on left, collective on right.*

**figure 052**

*operation.tools: elevation, subtraction 1 - mean altitude interaction.*

**figure 053**

*operation.tools: elevation, subtraction 2 - complimentary diffuse interaction.*

**figure 054**

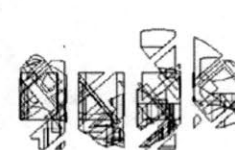
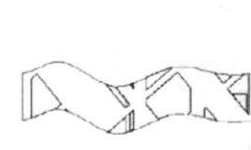
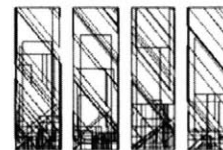
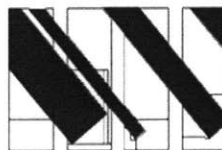
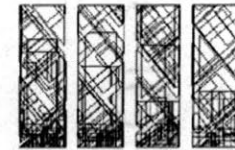
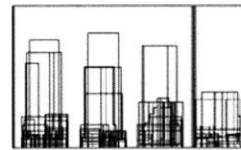
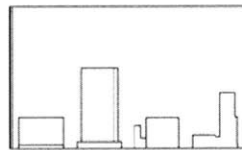
*operation.tools: elevation, subtraction 3 - inverse surface area relationship.*

## Site

The site for episode02 is chosen for its recurring extruded high-rise typology [objects]. The site is bounded by eighth avenue to the west; sixth avenue to the east; w. 52nd to the north; and w. 48th to the south [inclusive of the three most western blocks of episode01] (figures 043-050).

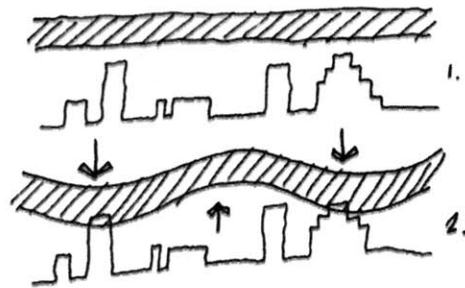
## Operation.tools

*Premise:* our specimen is the negative space. Three primary mechanisms are engaged in reductive or subtractive processes that ultimately abstract the desired underutilized zones. The three primary mechanisms will be referred to as 'mean altitude interaction,' 'complimentary diffuse interaction,' and 'inverse surface area relationship.'



**figure 055**

*operation.tools: conceptual elevation, subtraction 3 - inverse surface area relationship.*

**figure 056**

*operation.tools: axonometric, subtraction 3 - inverse surface area relationship curves.*

**figure 057**

*operation.tools: axonometric, subtraction 3 - inverse surface area relationship zones.*



*Mean altitude interaction:* allows average solar exposure to be the lead subtraction (figure 052).

*Complimentary diffuse interaction:* supports the lead subtraction by the introduction of northern complimentary cuts (figure 053).

*Inverse surface area relationship:* pre-supposes an inverse relationship between the existing built form [in terms of surface area] and the proximity of our zone of optimization (figure 054). That is, existing forms with more surface area are implicitly more dense and can accept more compactness. 1. The projected surface area for each building on each slice is calculated. 2. These perimeter totals are then idealized as a unit height dimension by dividing the quantity by four [this normalizes the deviation from building to building]. 3. The deviation



**figure 058**

*operation.tools: elevation episode01 - new housing in orange.*

**figure 059**

*operation.tools: elevation episode01 - new public spaces in orange.*

**figure 060**

*operation.tools: elevation episode01 - new retail spaces in orange.*

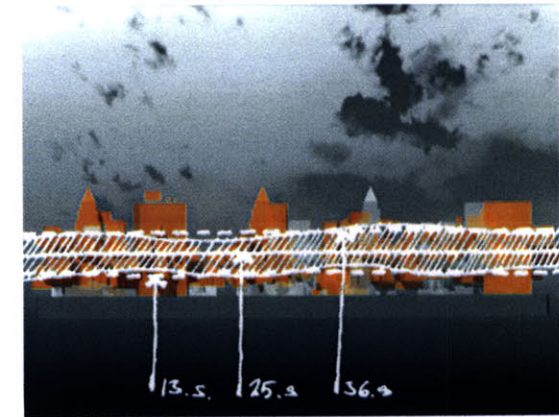
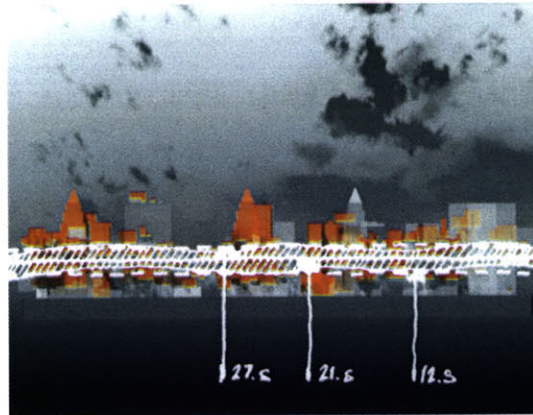
**figure 061**

*operation.tools: elevation episode01 - new spaces (all types) in orange.*

from the normalized average is then plotted on the section at points that represent the form's center of mass. This curve provides our zone with a formal boundary edge that is a result of its interaction with existing surface areas (figures 056 and 057). 4. The average height and depth of these desired zones is abstracted from the resulting form of episode01.j (figures 058-061). Consequently, the working depth of our zones will be approximately 23 stories with an average height of 25 stories.

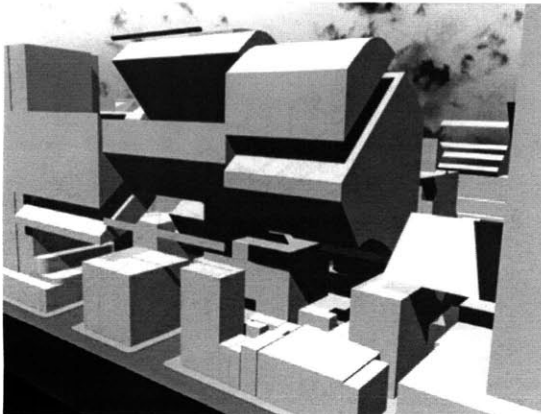
### Operations

*mechanism:* subtraction and union. The three primary mechanisms are engaged in reductive or subtractive processes that ultimately abstract the desired underutilized zones (figures 063-068).



**figure 062**

*operations: typical perspective of resulting forms (see figure 069 for sketch overlay).*



The three primary mechanisms will be referred to as 'mean altitude interaction,' 'complimentary diffuse interaction,' and 'inverse surface area relationship.'

*Mean altitude interaction:* Existing south facing facades are liberated by the subtraction of large swatches. The orientation of these lead subtractions recognize the mean solar altitude for New York City to be approximately 50°.

*Complimentary diffuse interaction:* introduces more regular cuts based on the scale of a typical building on the manhattan grid. Therefore, these subtractions occur at regular 200 ft. intervals with a width of 25-30 ft. Furthermore, their intent is not simply to break-up larger zones, but to engage northern diffuse light.

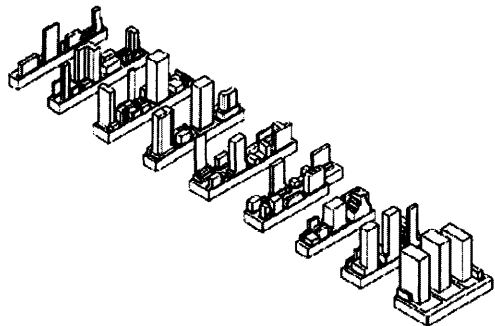
*Inverse surface area relationship:* refines our underutilized zones into an explicit layer with a shape that is derived from an inverse surface area relationship [refer to operation.tools] and proportion that is abstracted from episode01.j. The zones of potential optimization are then reintroduced into the existing condition (figure 062).

### **Operation.architecture**

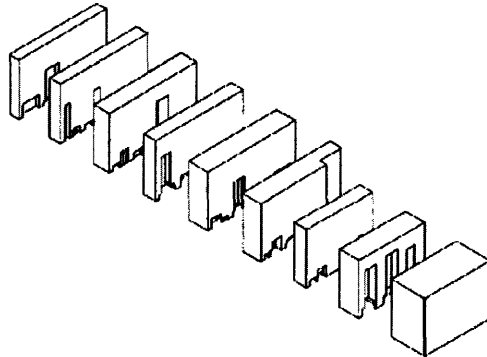
Layers of architectural consequence are added to the seemingly abstract form. Human scale and surface materiality are reintroduced. Proximity and adjacency are fully exploited. Development of these zones of potential optimization suggests a doubling in density of the urban fabric. The potential for discovered circuits, abundant veggies, and new surfaces that begin to harness the environment are rendered....one man's golfcourse becomes another man's roof (figures 069-074).

**figure 063**

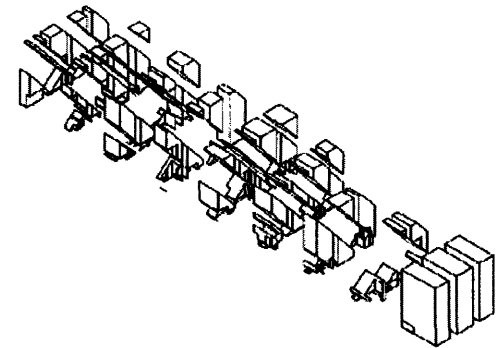
*operations: axonometric of slices pulled apart - existing condition.*

**figure 064**

*operations: axonometric of slices pulled apart - existing negative condition.*

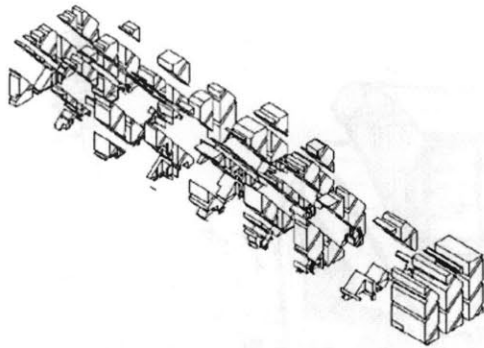
**figure 065**

*operations: axonometric of slices pulled apart - subtraction 1, mean altitude interaction.*

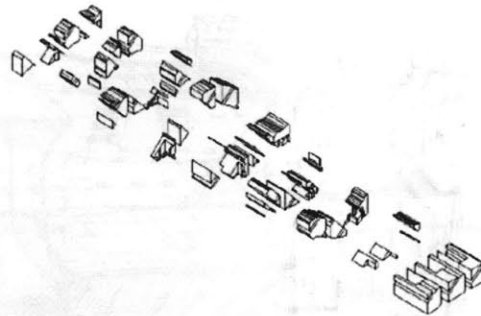


**figure 066**

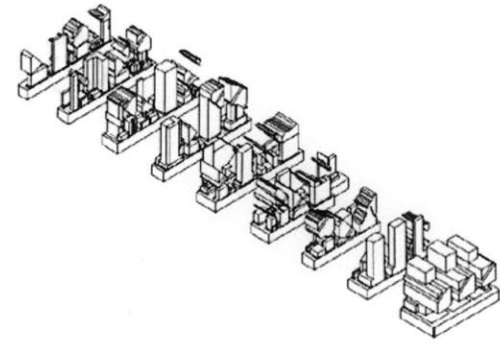
*operations: axonometric of slices pulled apart - subtraction 2, complimentary diffuse interaction.*

**figure 067**

*operations: axonometric of slices pulled apart - subtraction 3, inverse surface area relationship.*

**figure 068**

*operations: axonometric of slices pulled apart - reassembly of zones of potential optimization with the existing condition.*

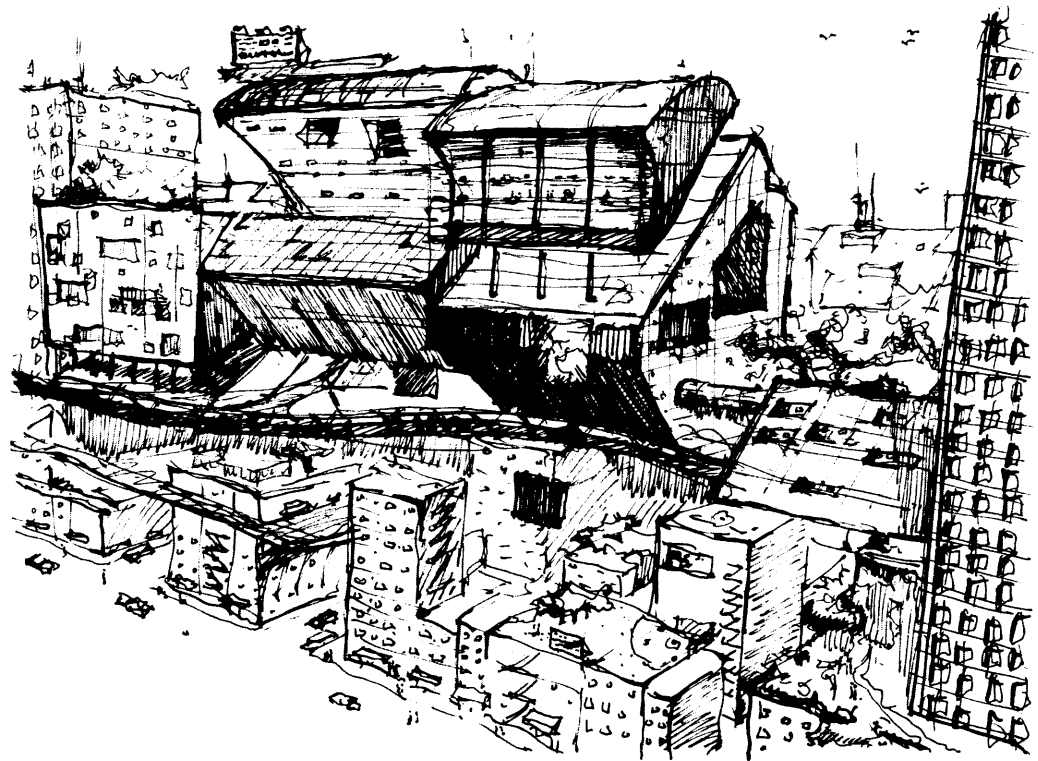




**figure 069**

*operation.architecture: perspective overlay  
sketch of resulting forms - what if?.*

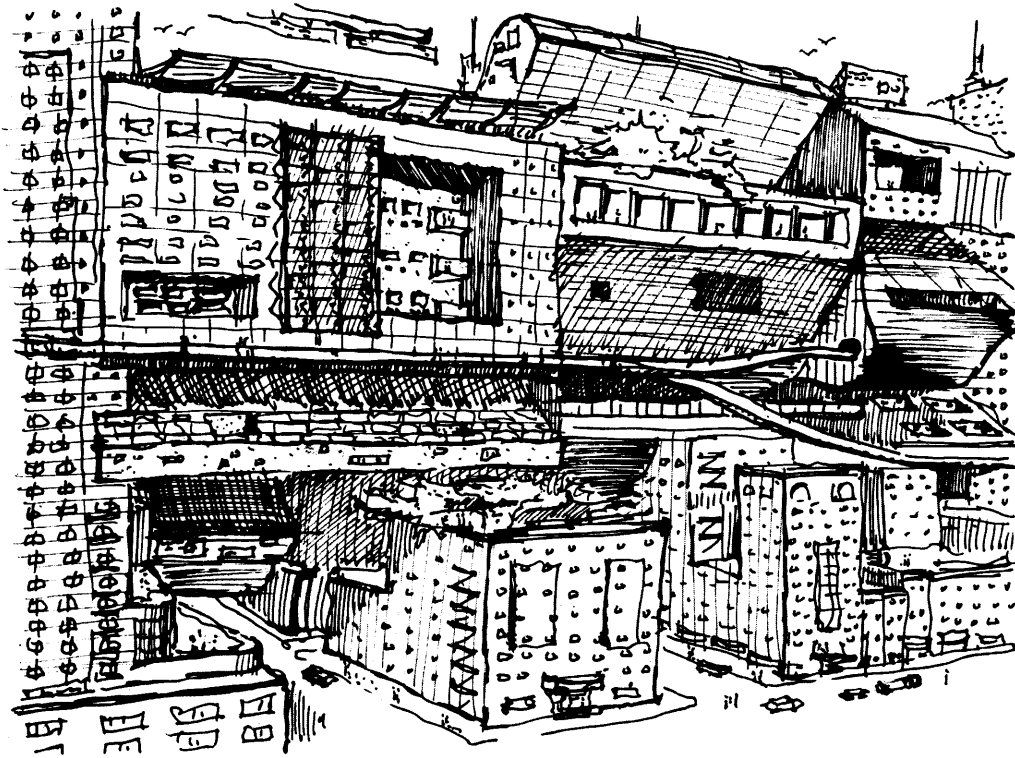
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**figure 070**

*operation.architecture: perspective overlay  
sketch of resulting forms - what if?.*

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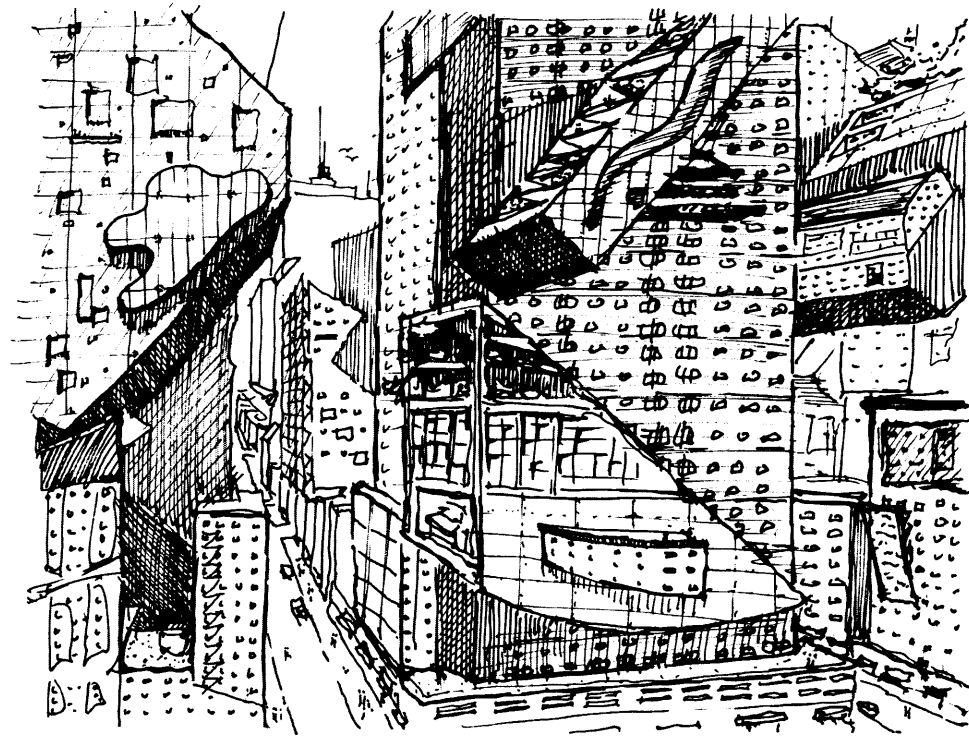




**figure 071**

*operation.architecture: perspective overlay  
sketch of resulting forms - what if?.*

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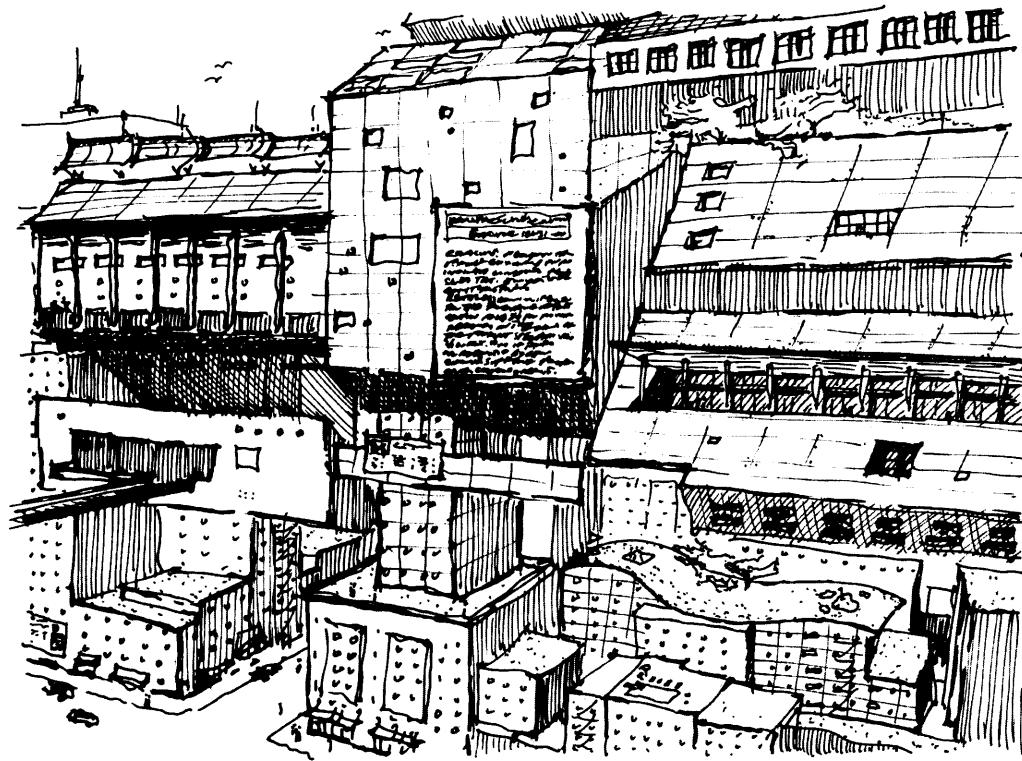




**figure 072**

*operation.architecture: perspective overlay  
sketch of resulting forms - what if?.*

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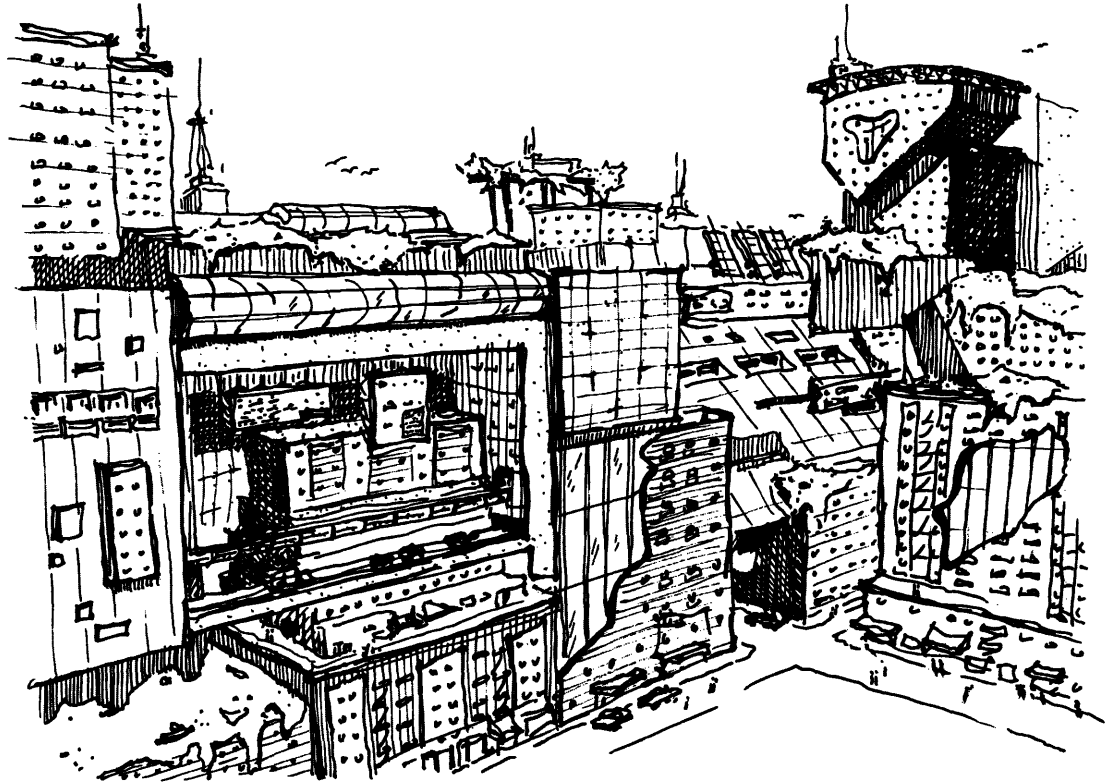






**figure 073**

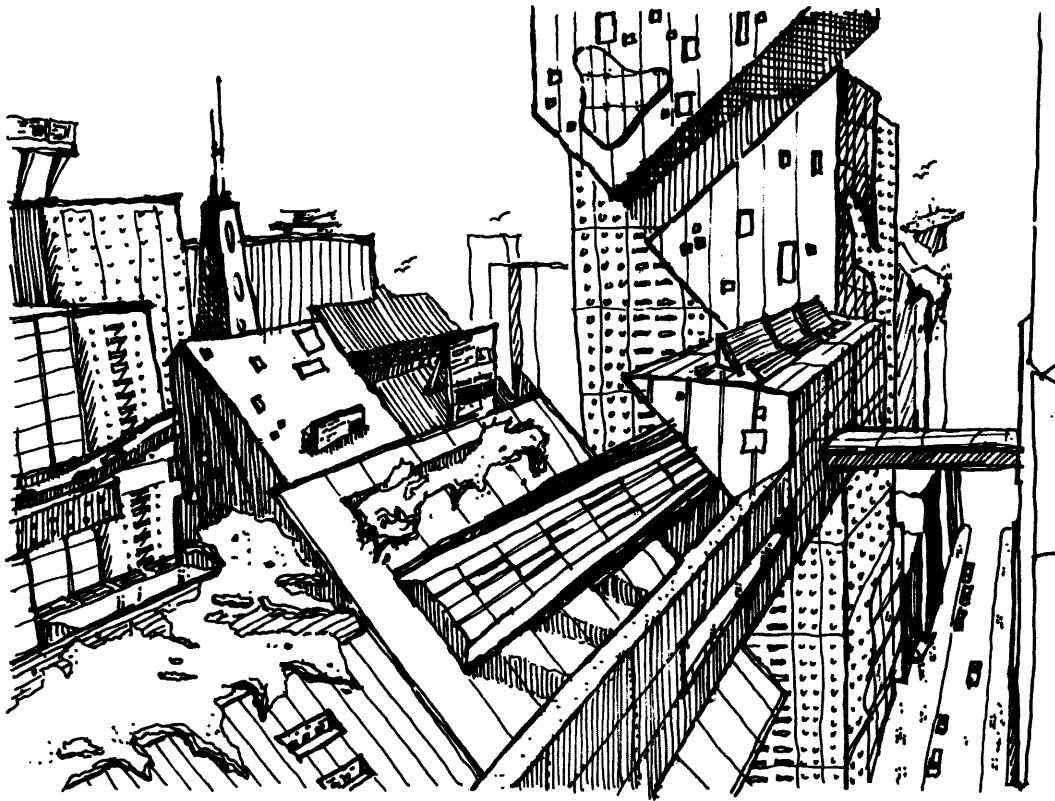
*operation.architecture: perspective overlay  
sketch of resulting forms - what if?.*



**figure 074**

*operation.architecture: perspective overlay  
sketch of resulting forms - what if?.*

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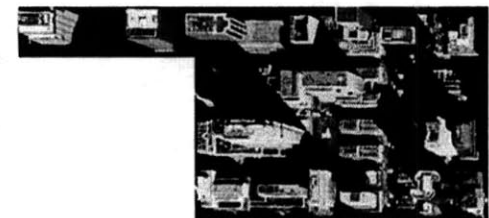
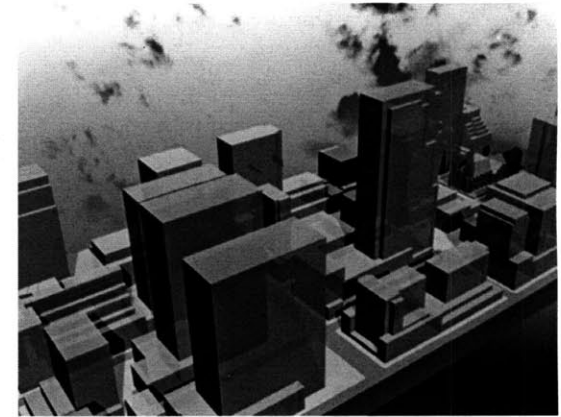


**figure 075**

*episode03: site - digital model of area  
incorporating three most eastern blocks from  
episode02.*

**figure 076**

*episode03: site - aerial photograph of area.*



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## **episode03** a new constructed landscape.

**How can we construct a new landscape within existing environs that can begin to nurture –through a symbiotic process- eventual densification?**

*Premise:* The existing urban ground-plane is near its capacity. A newly constructed landscape can act as a fresh set of organs [socially + environmentally] and renewed life if conditions are to become more dense.

Operations a+i explore the idea that the site itself should generate a new landscape. Operations b+j are continuations of operations a+i respectively that attempt to abstract a support network of public links. Operation.k suggests the nature of our constructed landscape over time. Furthermore, there is a regrounding of our abstract exercises with the introduction of a light-hearted layer of architectural consequence through collage.

*Variables:* geometry and assembly of constructed landscape.

*Mechanism:* random generation + subjective execution.

### **Site**

the site for episode03 is chosen for its pho-public character. The few public spaces within the site are seen as inadequate and interpreted as corporate placebos (token gestures to the planning department) that accomplish nothing more than self-promotion. The site is bounded by seventh avenue to the west; Madison avenue to the east; w. 52nd to the north; and w. 48th to the south (figures 075-082).

**figure 077**

*episode03: site photograph - 5th avenue at w. 48th. street, view north.*

**figure 078**

*episode03: site photograph - 5th avenue at w. 50th. street, view north.*

**figure 079**

*episode03: site photograph - w. 48th. street between 6th and 5th avenue, view north.*

**figure 080**

*episode03: site photograph - rockefeller plaza.*



**episode03:** a new constructed landscape.

**figure 081**

*episode03: site photograph - w. 51st. street  
between 7th and 6th avenue, view north.*

**figure 082**

*episode03: site photograph - w. 49th. street  
between 7th and 6th avenue, view south.*

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**figure 083**

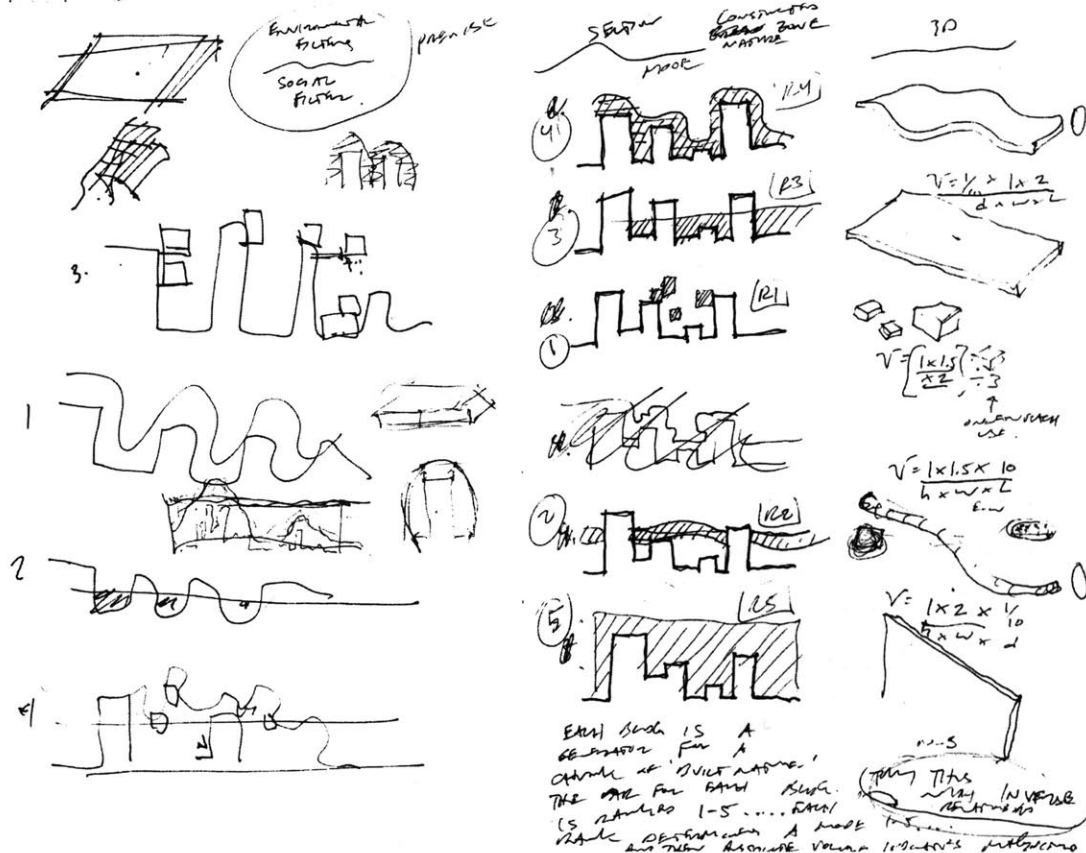
episode03: process sketch - five landscape modes used to construct a new landscape.

### Operation.a

Operation.a explores the idea that each existing building can generate a piece of the constructed landscape that is equal in volume to itself.

**Mechanism:** Five potential modes of construction (figure 083) are identified and randomly assigned to each existing building [suspension of preference] (figure 084). Placement of constructed pieces relies on light and shadow criteria from previous episodes (see figures 085-090 for results).

**Consequences:** 1. A very dense constructed landscape is generated as a result of the abstract process. 2. Some pieces are appropriate while others seem forced. 3. The intersection of these constructed forms offers potential points of intensity needing exploration.



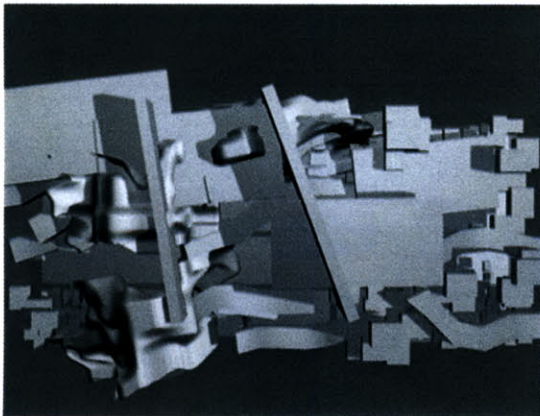
**figure 084**

*operation.a: diagram, landscape generators - random assignment of modes.*

**figure 085**

*operation.a: plan, landscape form - results from random assignment of modes.*

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**figure 086**

*operation.a: perspective diagram - mode01  
landscape forms.*

**figure 087**

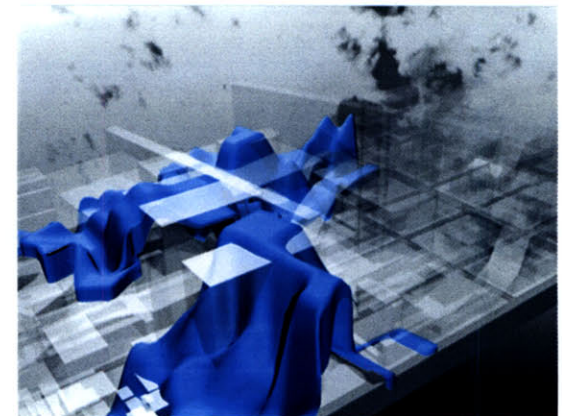
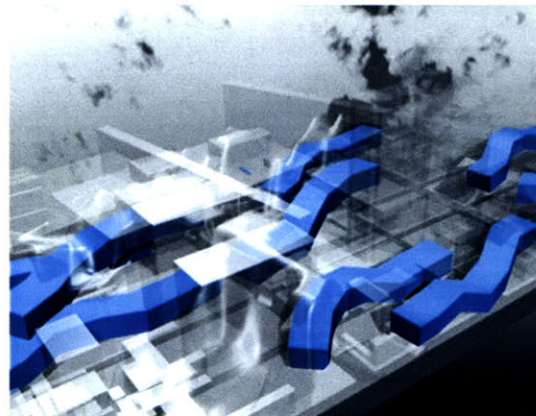
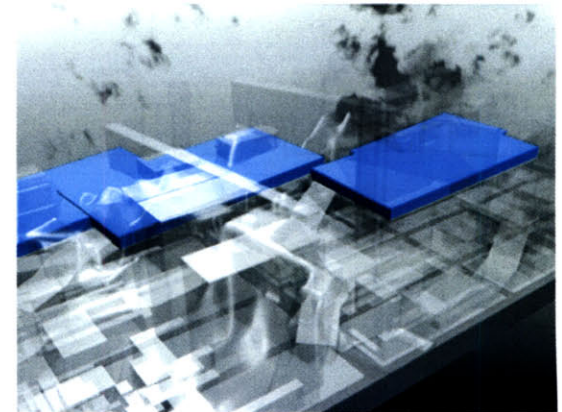
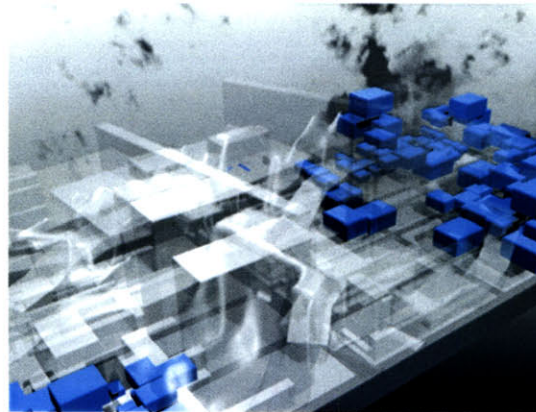
*operation.a: perspective diagram - mode02  
landscape forms.*

**figure 088**

*operation.a: perspective diagram - mode03  
landscape forms.*

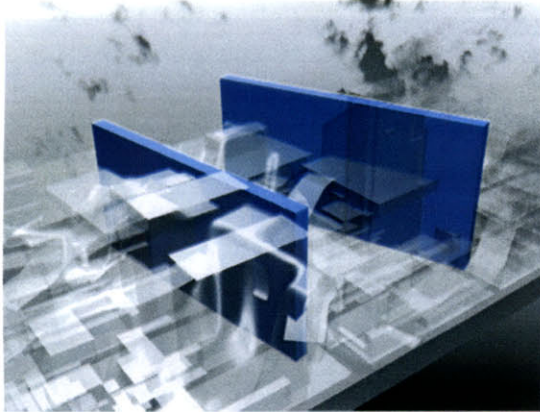
**figure 089**

*operation.a: perspective diagram - mode04  
landscape forms.*



**figure 090**

*operation.a: perspective diagram - mode05 landscape forms.*



### **Operation.b**

A series of public nodes is projected onto the constructed landscape (figure 091). The nodes are abstracted from the areas of intersection resulting from operation.a. These nodes are seen as points of potential intensity and can begin to act as anchors or place-holders for the process of densification.

*Mechanism:* abstraction + linkage. The public nodes are connected fluidly and linearly to reveal a network with the potential to support our constructed landscape (figure 092). This constructed public network pierces several existing office buildings. These buildings are identified as ideal primary connection points to the existing ground-plane. It is anticipated that these buildings will become a part of the public armature that facilitates the intended symbiotic relationship (figure 093 and 094).

*Consequences:* 1. a broken network that is concentrated in an already dense portion of the site.

### **Operation.i**

*Premise:* a modal preference has emerged from operation.a.

Operation.i follows a similar trajectory to that of operation.a. A constructed landscape equal in volume to the total volume of buildings on the site is still our objective. However, it is clear now that certain existing conditions are more suited towards specific modes (figure 095).





**figure 091**

*operation.b: plan of public nodes shown in dark grey.*

**figure 092**

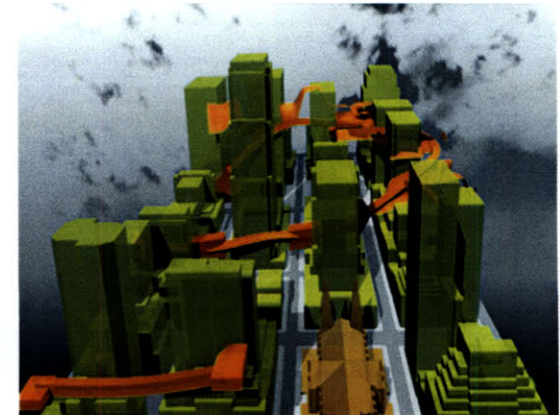
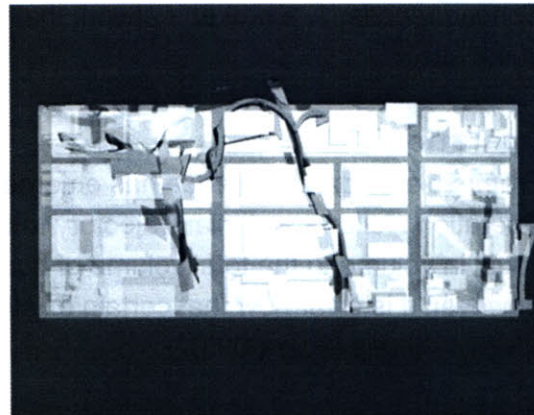
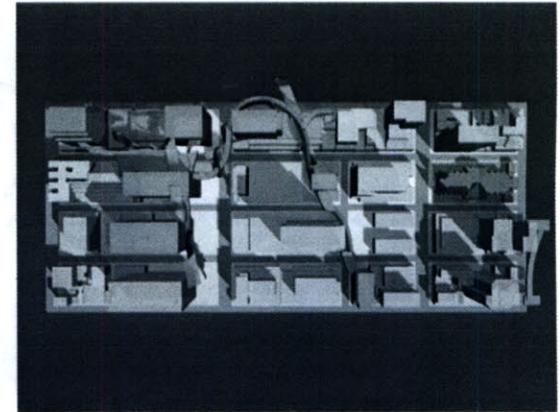
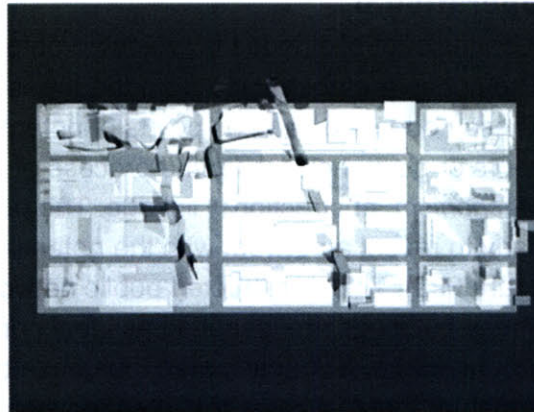
*operation.b: plan of public links connecting nodes, all shown in dark grey.*

**figure 093**

*operation.b: plan of public network within existing condition shown in dark grey.*

**figure 094**

*operation.b: perspective of abstracted public network within existing condition shown orange.*



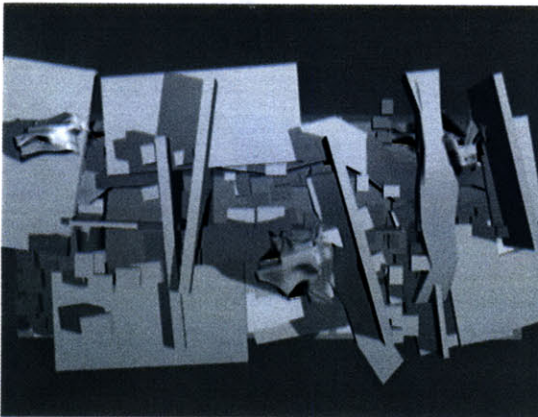
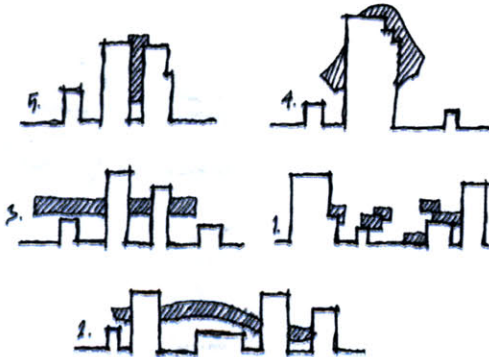
**figure 095**

*operation.i: diagram, landscape generators - subjective assignment of modes based on suitability.*

**figure 096**

*operation.i: plan, landscape form - results from subjective assignment of modes.*

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**figure 097**

*operation.i: perspective diagram - mode01  
landscape forms.*

**figure 098**

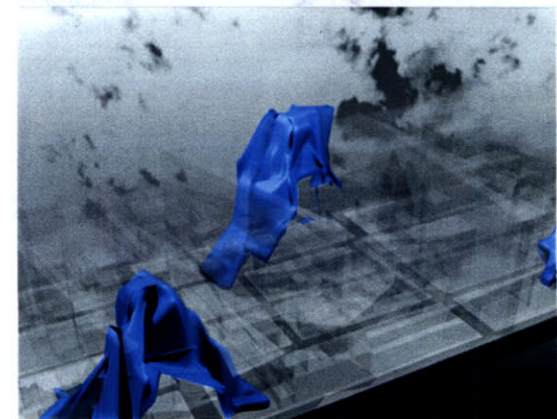
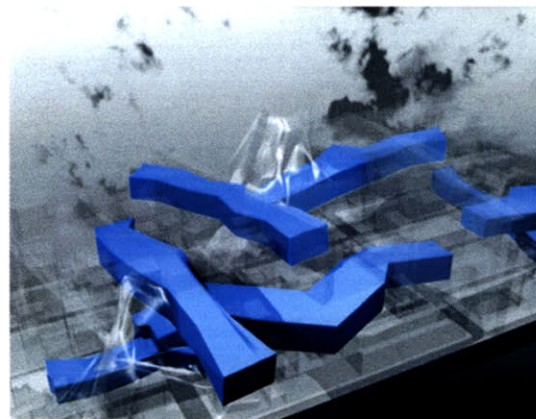
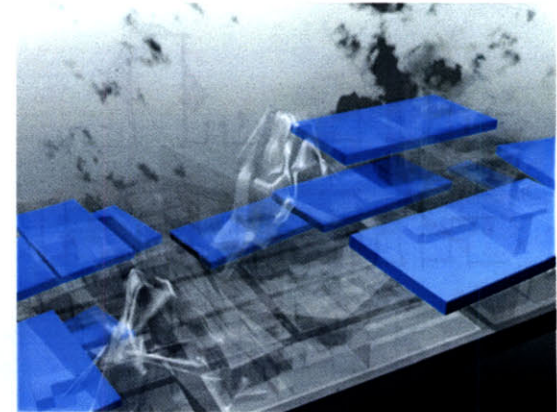
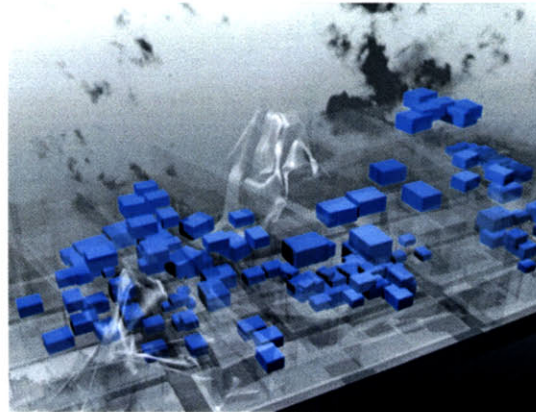
*operation.i: perspective diagram - mode02  
landscape forms.*

**figure 099**

*operation.i: perspective diagram - mode03  
landscape forms.*

**figure 100**

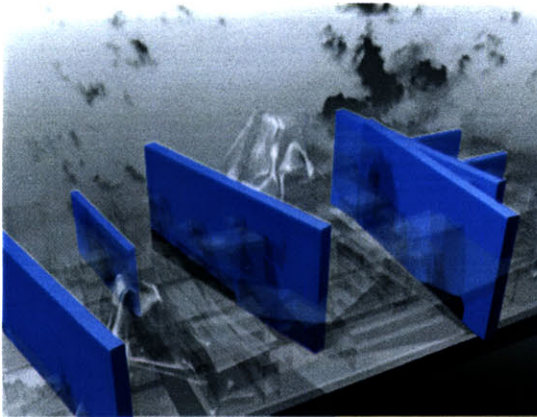
*operation.i: perspective diagram - mode04  
landscape forms.*





**figure 101**

*operation.i: perspective diagram - mode05 landscape forms.*



*Modes:* Mode01 is generally suited for most conditions, but best used in open areas that are surrounded by taller buildings. Mode02 is appropriate for tight conditions between buildings. Mode03 works well in areas that have tall buildings adjacent to short buildings. Mode04 is suited for tall buildings in open spaces [freestanding]. Mode05 is appropriate for tight conditions between buildings (see figures 096-101 for results).

*Consequences:* 1. A dense constructed landscape is generated as a result of the subjective process (figure 096). 2. Modes01, 02, 04, & 05 are easiest to work with and meet most needs. 3. Mode05 seems to offer the most practical [structural + programmatic] potential. 4. The intersection of these constructed forms offers potential points of intensity needing exploration.

### **Operation.j**

A series of public nodes is projected onto the constructed landscape (figure 102). The nodes are abstracted from the areas of intersection resulting from operation.i. these nodes are seen as points of potential intensity and can begin to act as anchors or place-holders for the process of densification.

*Mechanism:* abstraction + linkage. The public nodes are connected fluidly and linearly to reveal a network with the potential to support our constructed landscape (figure 103). This constructed public network pierces several existing office buildings.



**figure 102**

*operation.j: plan of public nodes shown in dark grey.*

**figure 103**

*operation.j: plan of public links connecting nodes, all shown in dark grey.*

**figure 104**

*operation.j: plan of public network within existing condition shown in dark grey.*

**figure 105**

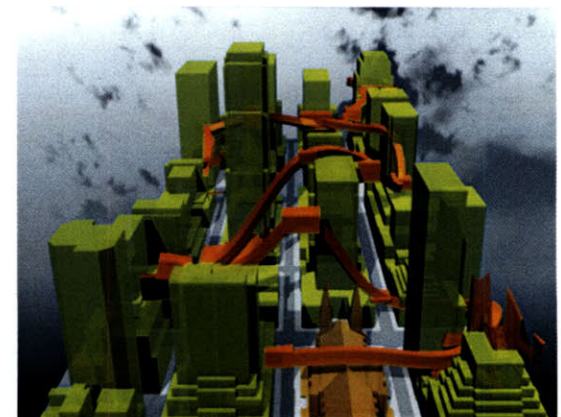
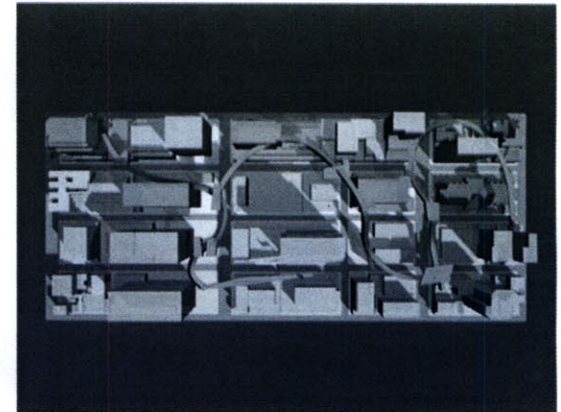
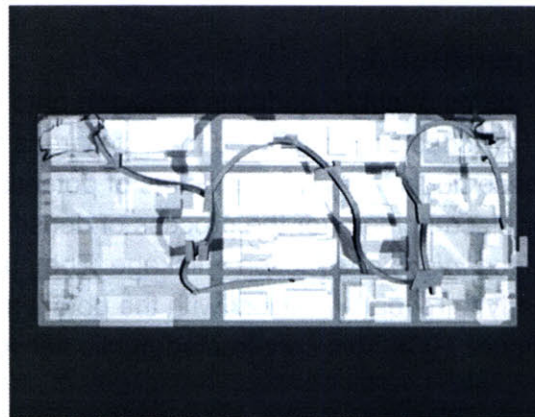
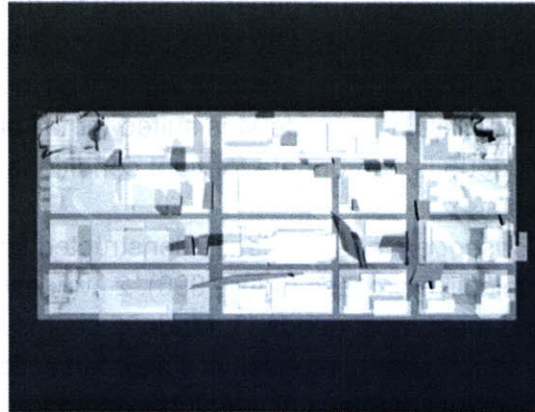
*operation.j: perspective of abstracted public network within existing condition shown orange.*

These buildings are identified as ideal primary connection points to the existing ground-plane. It is anticipated that these buildings will become a part of the public armature that facilitates the intended symbiotic relationship (figures 104 and 105).

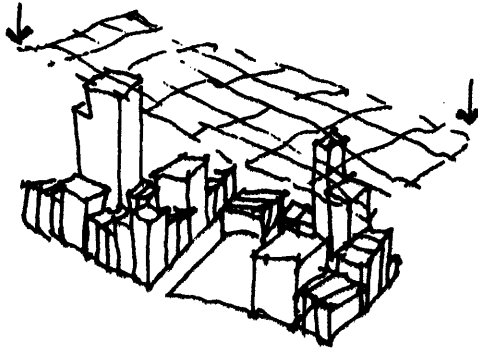
*Consequences:* 1. better extended network able to accommodate a more regular densification. 2. Operation.j yields a potentially stronger network than operation.b.

### **Operation.k**

*Premise:* Operation.j is chosen for further development. Its projected public nodes are seen as magnets that will begin first to attract additional public programming. Subsequently, a need for additional housing is satiated followed by



**figure 106**  
*episode03: initial idea sketch.*



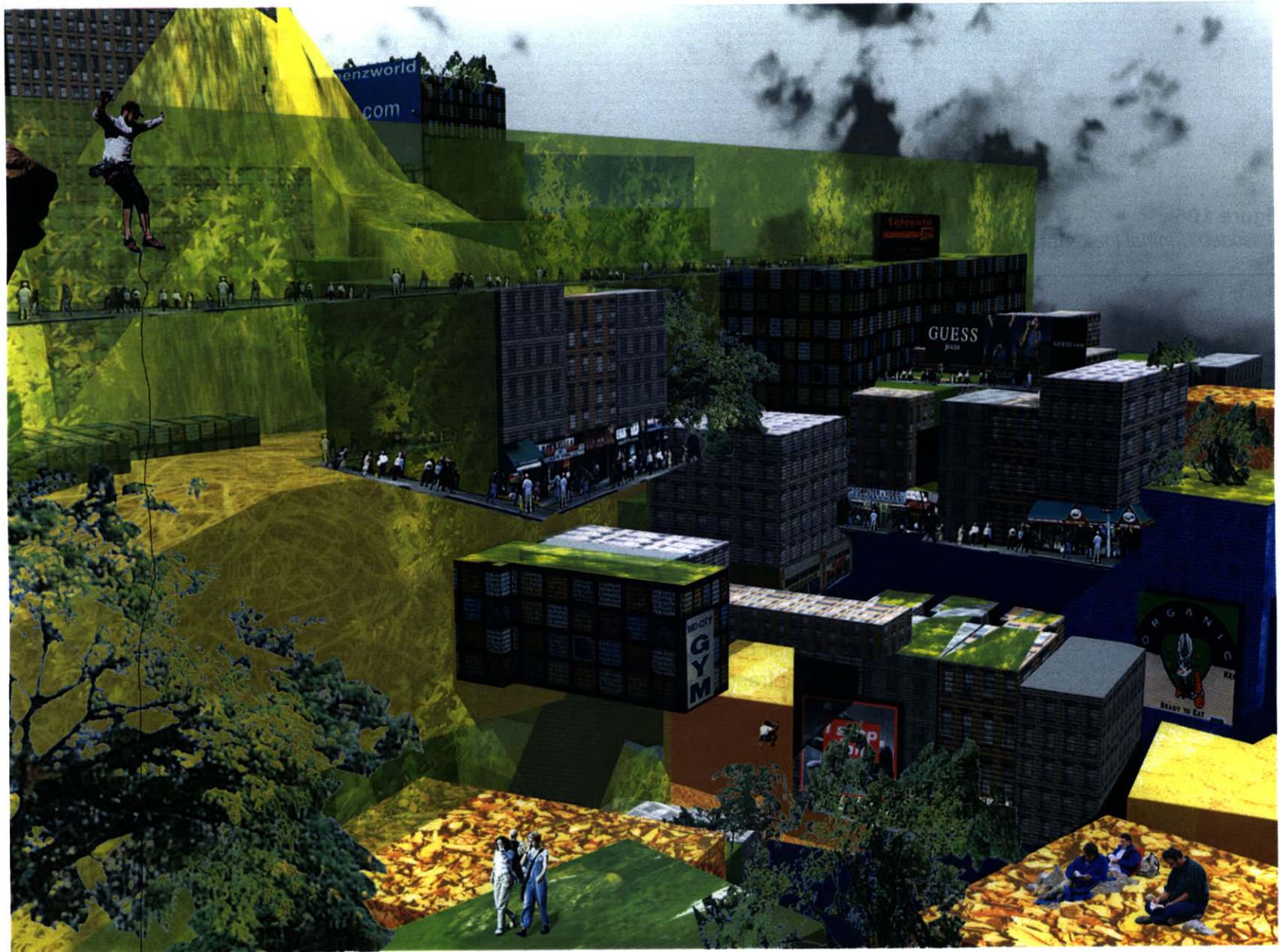
retail space as a means to enact a degree of autonomy to the site. Furthermore, our intent is to dismiss notions of the abstract and re-ground our investigations by implementing a more architectural vocabulary.

*Mechanism:* collage. T=1 demonstrates a potential first phase as public buildings are borrowed and inserted from episode01. Each block is clustered near the constructed network using lighting and shadow criteria from previous episodes. T=2 begins to introduce housing. T=3 begins to incorporate retail (figures 108-112).

*Note:* because the existing site is composed primarily of office space, it is assumed that additional demand for the same should be projected to other areas. Our larger objective is to make each smaller area a bit more self-sufficient.

*Consequences:* 1. The re-introduction of materiality and human scale reveals a convincing scenario (figure 107). 2. The constructed landscape serves to nourish an ailing infrastructure while providing expanded opportunity for recreation and open space.





**figure 107**

*operation.k: left - re-introduction of materiality and human scale through collage.*

**figure 108**

*operation.k: plan of growth study over time - collections along new public network,  $t=0$ .*

**figure 109**

*operation.k: plan of growth study over time - collections along new public network,  $t=1$ .*

**figure 110**

*operation.k: plan of growth study over time - collections along new public network,  $t=2$ .*

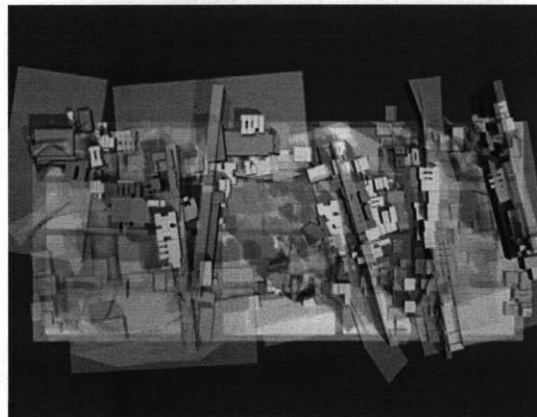
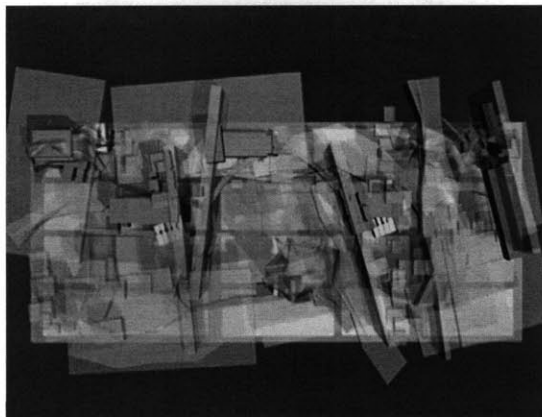
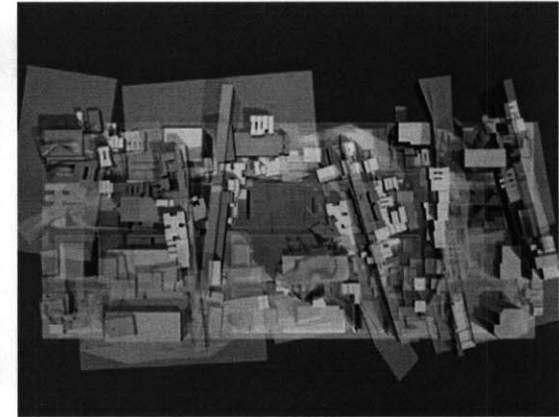
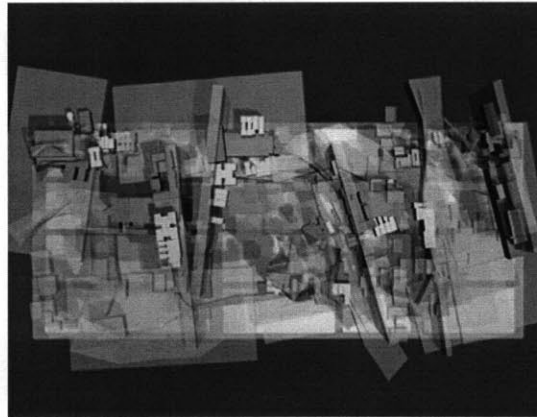
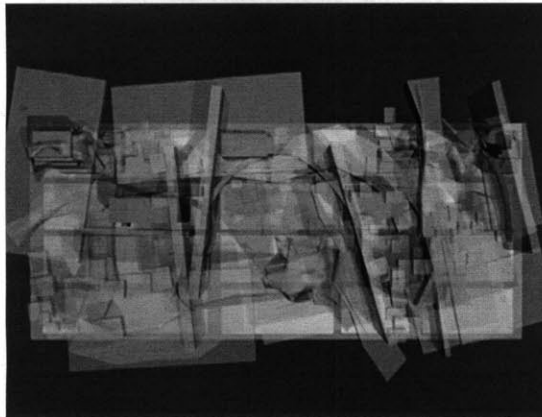
**figure 111**

*operation.k: plan of growth study over time - collections along new public network,  $t=3$ .*

**figure 112**

*operation.k: plan of growth study over time - collections along new public network,  $t=4$ .*

**episode03:** a new constructed landscape.



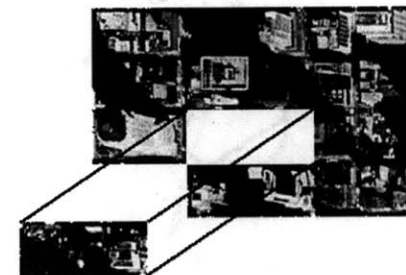
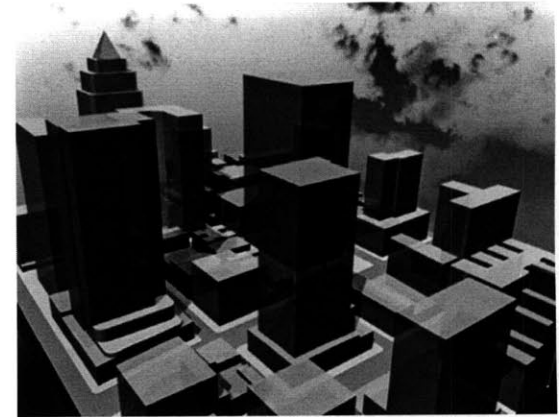


**figure 113**

*episode\_n: site - digital model of area incorporating regions used in episode01 and episode02.*

**figure 114**

*episode\_n: site - aerial photograph of single midtown block and surroundings.*



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## **episode\_n** stitching - episode interaction.

Episode\_n attempts to explore directly the interaction of ideas abstracted from the first three episodes. This presumes that a logic may develop that governs the use of our tools. Furthermore, episode\_n is interested in the interaction of these new tools with a more traditional design sensibility.

*Logic*: 1. The constructed landscape should precede all other operations and serve as an armature for densification. 2. Zones of potential optimization may then be abstracted and evaluated in relation to proposed public network. 3. Refinement of these zones relies on massing and orientation criteria developed in episode01.

*Variables*: location [x,y,z], orientation, solid + void, and basic geometrical relationships.

*Mechanism*: displacement [x,y,z], rotation, extrusion, subtraction, random generation and subjective execution.

### **Site**

the site for episode\_n is chosen for its diversity in density, program and built form. the site is a single block bounded by eighth avenue to the west; Broadway to the east; w. 50th to the north; and w. 49th to the south. The site occupies a region intersected by the sites for episode01 and episode02 (figures 113 and 114).

### **Operation.landscape**

*Premise*: the constructed landscape should precede all other operations and serve as



**figure 115**

*operation.landscape: plan, landscape form - results from subjective assignment of modes.*

**figure 116**

*operation.landscape: plan of public nodes shown in dark grey.*

**figure 117**

*operation.landscape: plan of public links connecting nodes, all shown in dark grey.*

**figure 118**

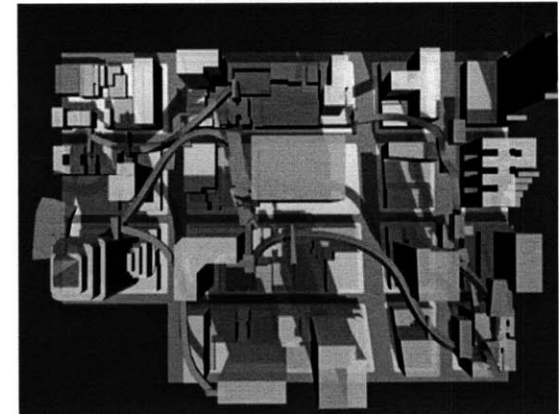
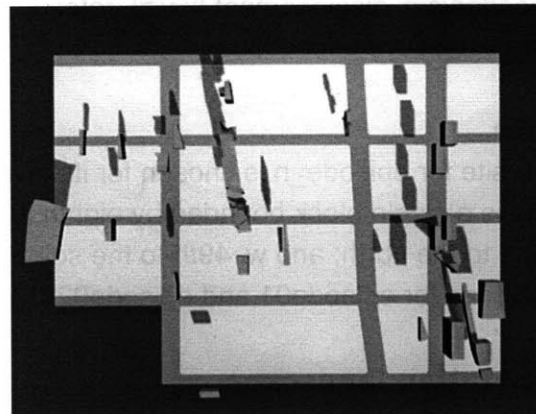
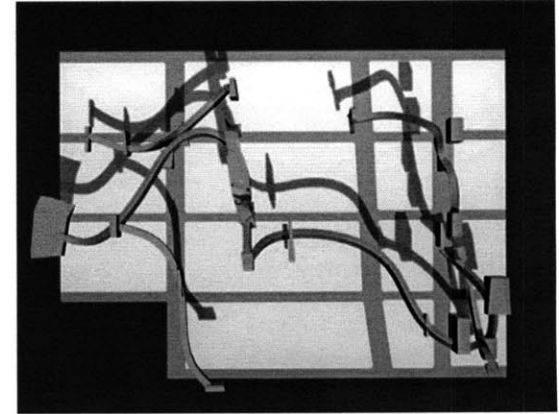
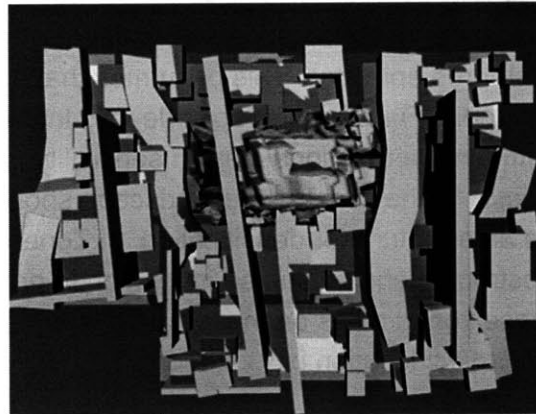
*operation.landscape: plan of public network within existing condition shown in dark grey.*

an armature for densification.

*Mechanism:* random generation and subjective execution.

Operation.landscape employs the ideas developed in episode03. A constructed landscape equal in built volume to the existing site is generated and distributed (figure 115). Its points of intersection are then abstracted as public nodes (figure 116) and connected as a support network (figures 117 and 118).

*Consequences:* 1. necessity for constructed landscape to precede other operations due to its scale of influence. 2. A constructed landscape is appropriate in the suggestion of a planned growth dependent on the constructed public network.



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### **Operation.optimization**

*Premise:* Zones of potential optimization may be abstracted and evaluated in relation to proposed public network. Subsequently, zones may be refined through a parceling process (see operation.refinement).

*Mechanism:* subtraction and union. The three primary mechanisms from episode02 are engaged in reductive or subtractive processes that ultimately abstract the desired underutilized zones. Ideas of direct + diffuse light and surface area are allowed to sculpt the existing negative space on the site (figures 119-124).

*Variables:* solid + void.

*Consequences:* operation.optimization can be employed at any time to an existing condition; however, the abstracted zones are reliant on other bits of information in order for their massing to be refined. Therefore, the presence of a public network begins to suggest a programmatic preference within the zones of potential optimization.

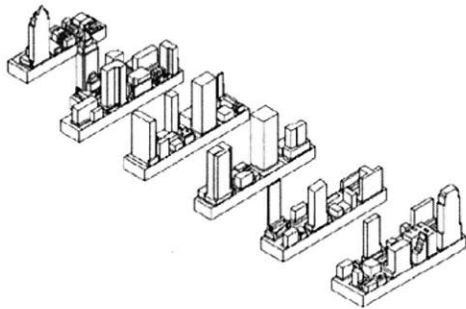
### **Operation.refinement**

*Premise:* Refinement and assignment of abstracted zones can rely on ideas discovered in episode01.

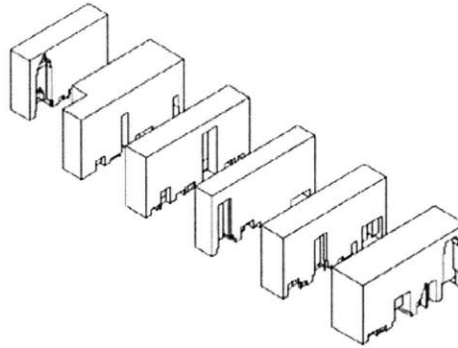
*Mechanism:* parceling. Assignment of public spaces is first (figures 126 and 130) and exploits the concepts of 'middle-ground,' 'manhattan e-w grain,' and 'shadow mass-

**figure 119**

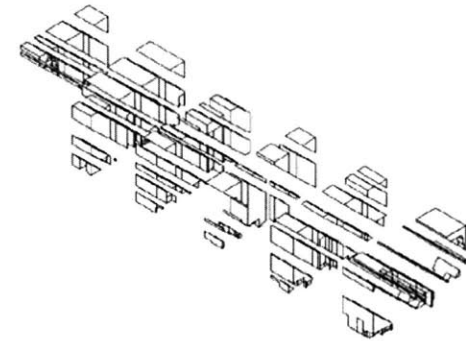
*operation.optimization: axonometric of slices pulled apart - existing condition.*

**figure 120**

*operation.optimization: axonometric of slices pulled apart - existing negative condition.*

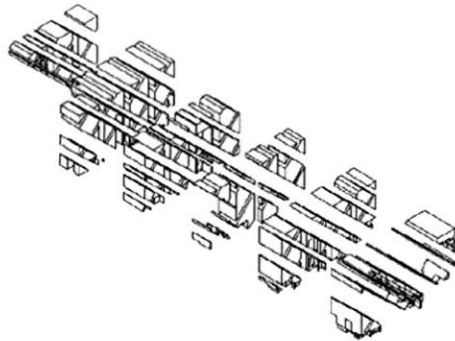
**figure 121**

*operation.optimization: axonometric of slices pulled apart - subtraction 1, mean altitude interaction.*



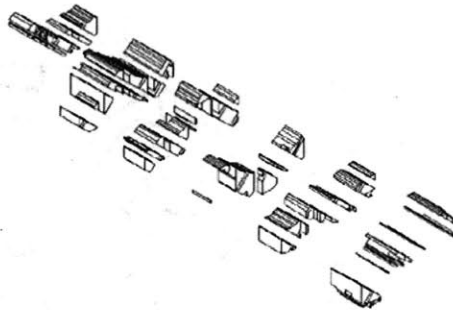
**figure 122**

*operation.optimization: axonometric of slices pulled apart - subtraction 2, complimentary diffuse interaction.*



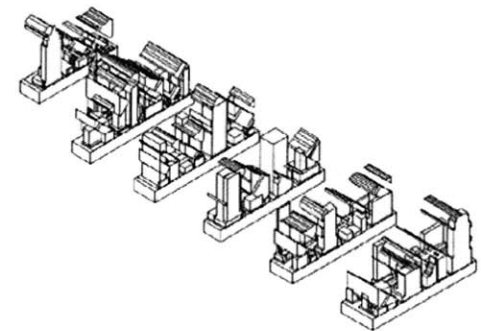
**figure 123**

*operation.optimization: axonometric of slices pulled apart - subtraction 3, inverse surface area relationship.*



**figure 124**

*operation.optimization: axonometric of slices pulled apart - reassembly of zones of potential optimization with the existing condition.*





**figure 125**

*operation.refinement: perspective of  
massing resulting from  
operation.optimization.*

**figure 126**

*operation.refinement: perspective, parceling  
- assignment of public program.*

**figure 127**

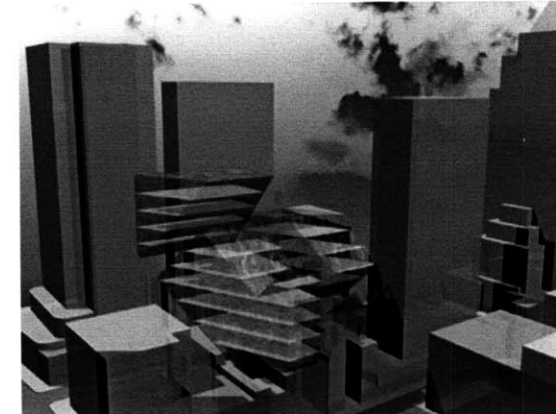
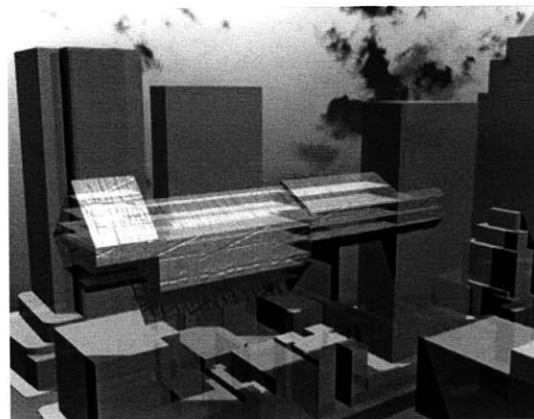
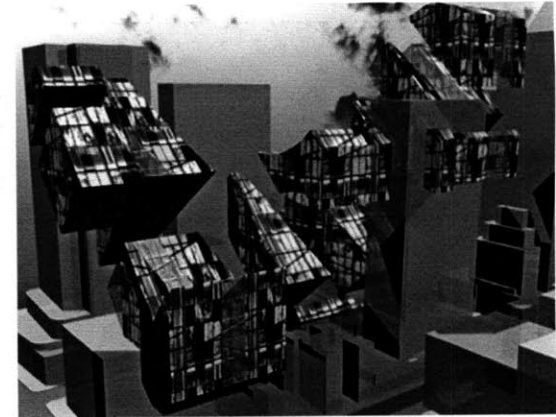
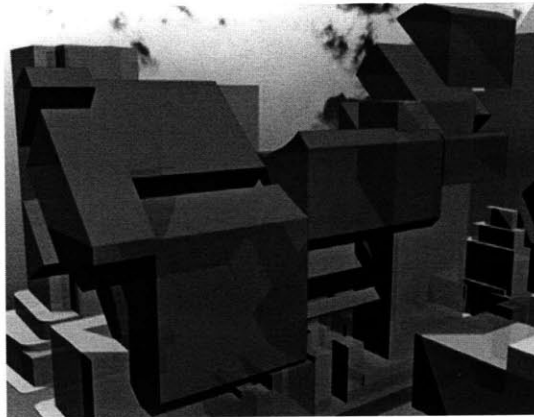
*operation.refinement: perspective, parceling  
- assignment of housing program.*

**figure 128**

*operation.refinement: perspective, parceling  
- assignment of retail/commercial program.*

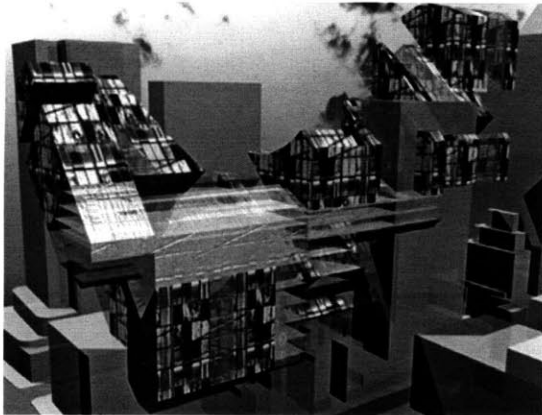
ing.' A public library and a police station form the heart of development as they connect two public nodes. Assignment of housing blocks is based on concepts of 'true n-s surface orientation' and basic dimensional logic [housing is housing] (figures 127 and 131). Large n-s swatches are subtracted to create atrium spaces between housing bars and to increase light and ventilation to the units. Furthermore, these atrium spaces provide direct access to outdoor public space and the proposed pedestrian ways. Assignment of retail/commercial blocks is less intense and only exploits proximity of public spaces (figures 128 and 132). Retail/commercial blocks are tucked in to the shadow zones of the existing buildings and are oriented in a more e-w direction.

*Variables: geometry, orientation, solid +*



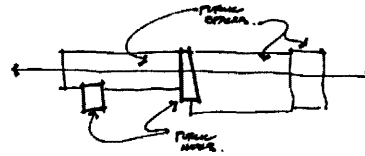
**figure 129**

*operation.refinement: perspective, parceling  
- reassembly of assigned forms.*

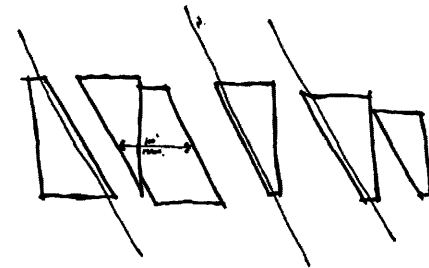




**figure 130**  
operation.refinement: plan diagram,  
parceling - assignment of public program.

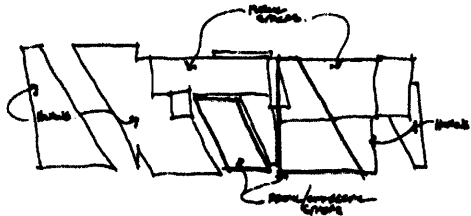


**figure 131**  
operation.refinement: plan diagram,  
parceling - assignment of housing program.



**figure 132**

*operation.refinement: plan diagram,  
parceling - assignment of retail/commercial  
program.*



void.

*Consequences:* The simple tools brought from episode01 lend themselves to the refinement process [rather than a creation process] needed in this operation.

### **Operation.systems**

*Premise:* The abstracted systems are in need of development and greater precision.

*Mechanism:* development. First the constructed public network [regions affecting the site] is simplified and rendered as a light rail system that supports a network of pedestrian ways that have been liberated from the ground plane. Nodes are simplified as connections to existing program are made. Larger nodes are seen as public bazaars (figures 133 and 134). Second, preliminary structural moves are suggested which ground the abstract blocks - both landscape and program - to the earth (figures 137 and 138). Furthermore, structure and circulation are conceived of together. That is, vertical circulation can be contained within large structural cores (see figures 139 and 140 for results).

*Variables:* structure and circulation.

*Consequences:* A support system of structure and circulation is rendered in a convincing manner.

**figure 133**

*operation.systems: perspective, public network - public program , public nodes, and their links (light rail + pedestrian ways).*

**figure 134**

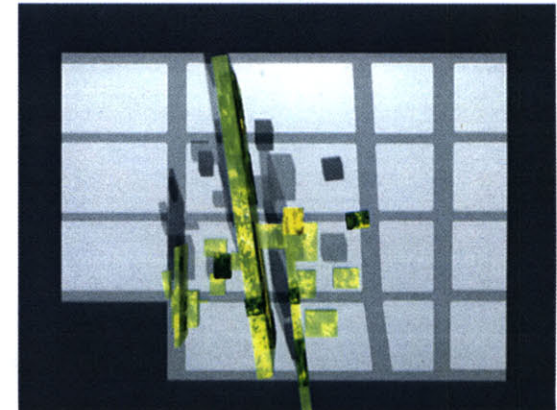
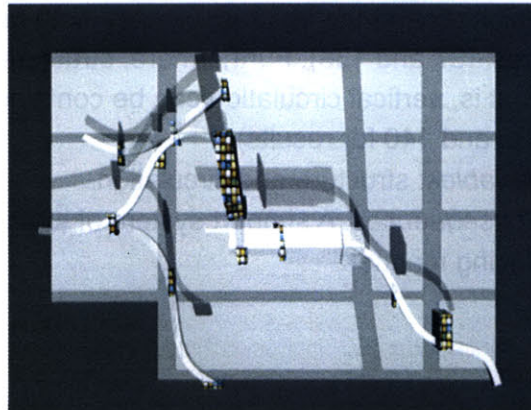
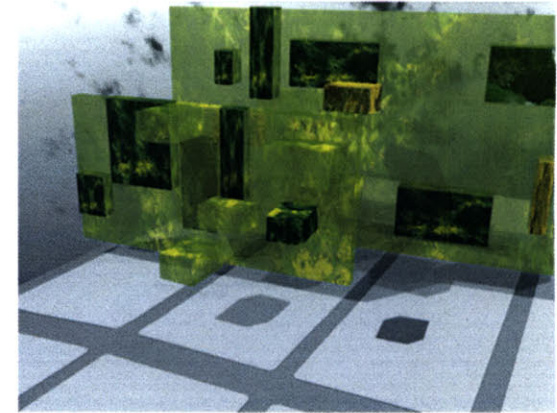
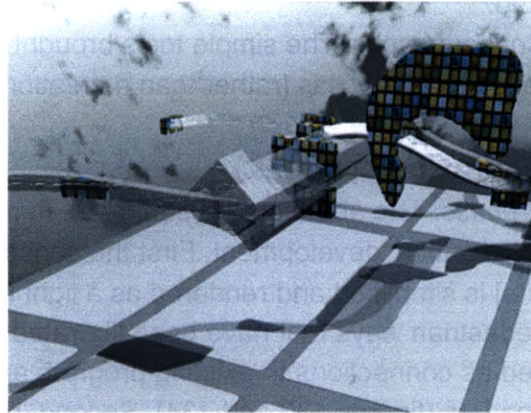
*operation.systems: plan, public network - public program , public nodes, and their links (light rail + pedestrian ways).*

**figure 135**

*operation.systems: perspective, constructed landscape - modes01 and 05 used.*

**figure 136**

*operation.systems: plan, constructed landscape - modes01 and 05 used.*



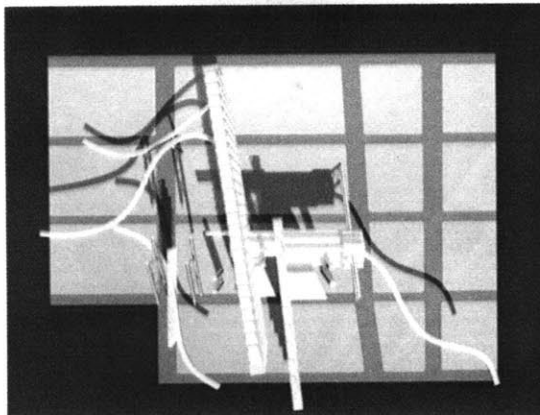
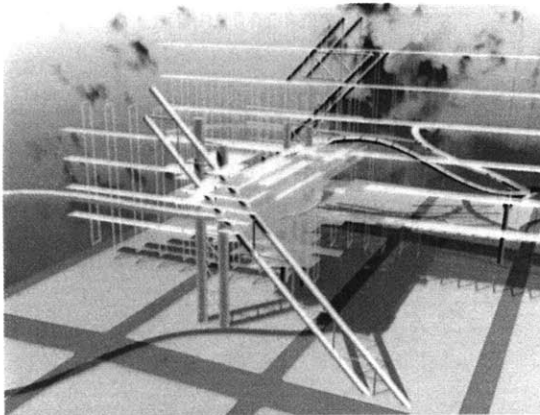
**figure 137**

*operation.systems: perspective, primary structure.*

**figure 138**

*operation.systems: plan, primary structure.*

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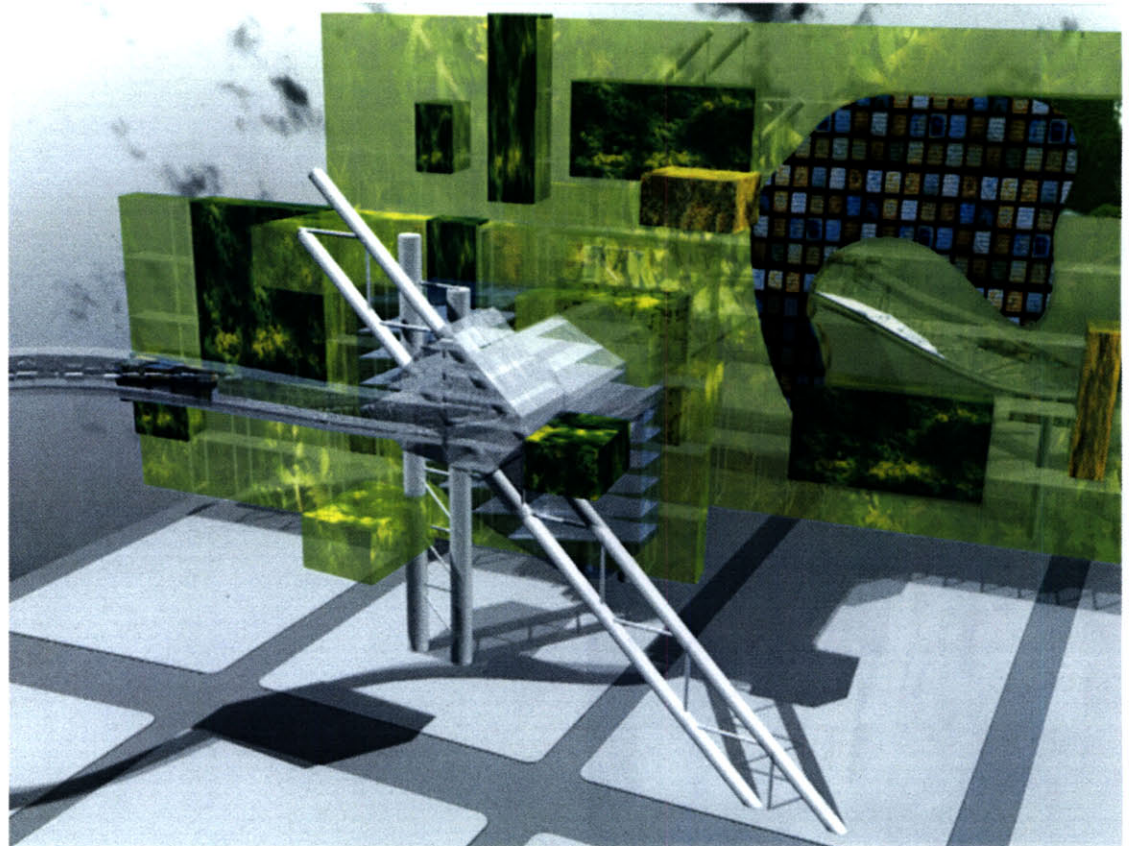






**figure 139**

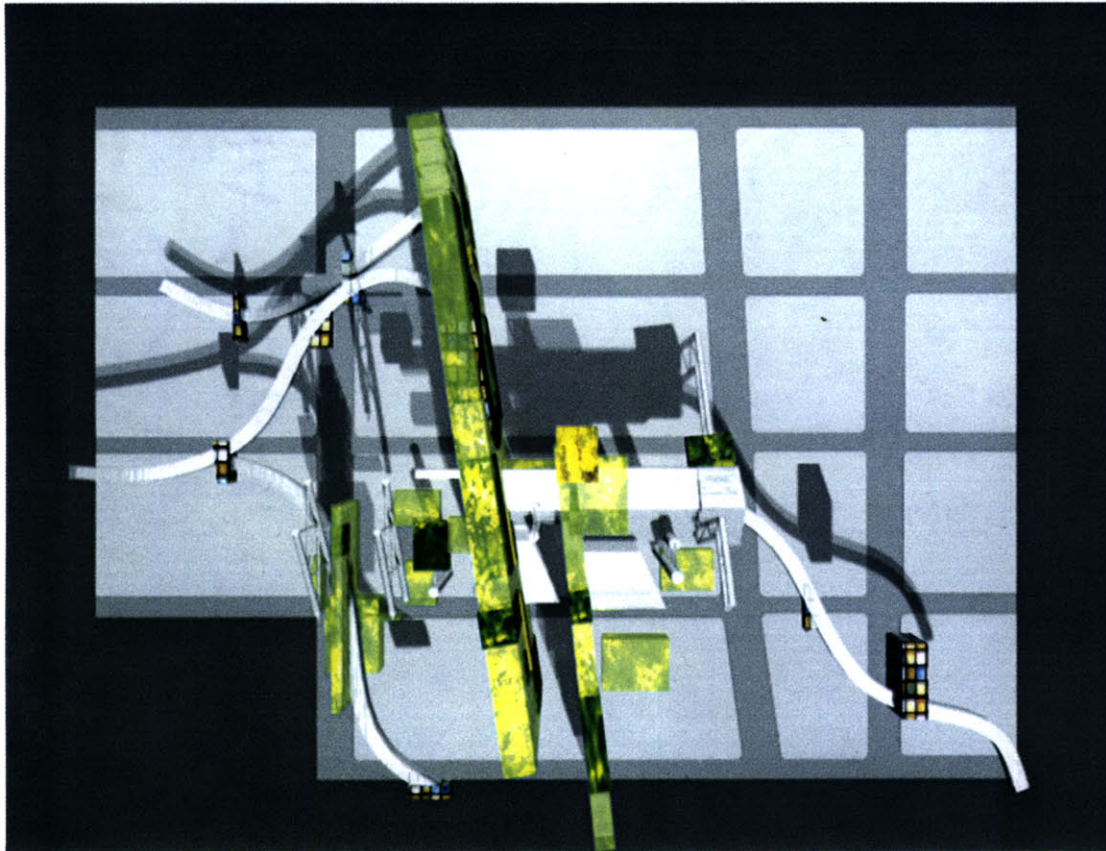
*operation.systems: perspective of systems -  
public network + constructed landscape +  
primary structure.*



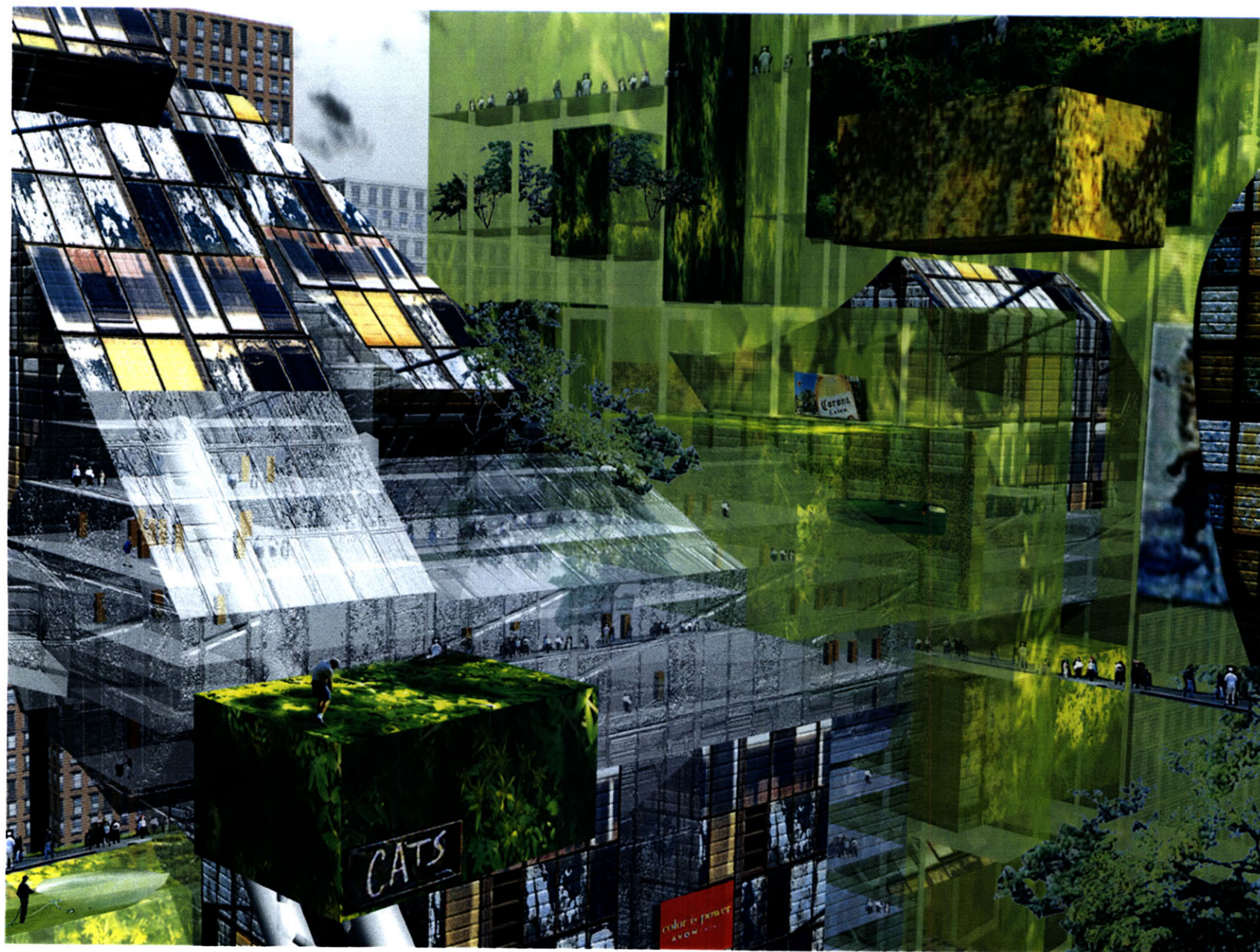
**figure 140**

*operation.systems: plan of sytems - public  
network + constructed landscape + primary  
structure.*

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**figure 141**

*operation.architecture: left - re-introduction  
of materiality and human scale through  
collage.*

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**Operation.architecture**

*Premise:* intent to dismiss notions of the abstract and re-ground our investigations and their collaboration by implementing a more architectural vocabulary.

*Mechanism:* collage. The intent is not photo-realism, but simply the suggestion of an environment that has expanded beyond our conceptual limitations.

*Consequences:* The re-introduction of materiality and human scale proposes convincing imagery that is suggestive of an intensified inhabitation of underutilized space (figure 141).



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## **density revisited** expanding our vision.

This thesis encourages abstract thought as a way to begin to see beyond existing socio-political and economic limitations. Consequently, there is an attempt to promote imagery that suggests that density is not bad. There is also directive to provide enhanced environments that offer elements and opportunities not already exploited fully within the city. Dr. William Michelson outlines five factors that mediate between density and livability: 1. access to appropriate resources. 2. crime-preventive site planning and architecture. 3. diversity when appropriate. 4. compensation for vulnerability. 5. feeling of control.<sup>7</sup> The resulting forms in episode\_n set the framework for an environment with the potential for exceeding these livability criteria. Many of these ideas begin to work more effectively at the scale of a housing unit or cluster. However, preliminary planning has laid the foundation for all of these needs and made available additional layers of opportunity within the existing fabric:

*Basic economy of land and resource.* The proposed efficiency in land and resource is obvious. The development of less land implies a reduction in the consumption of resource. The compaction of a city may however impede the exploitation of passive energy technologies. A complete economic analysis is well beyond the scope of this thesis and perhaps not even attainable. To do so would demand that actual value be

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<sup>7</sup>Michelson, Dr. William. Density and Livability - People and Place. (British Columbia: Centre for Human Settlements, University of British Columbia, 1984) 12-18.



**figure 142**

*kowloon walled city - world's densest settlement prior to its demolition in 1992.*

assigned to human life and that we quantify the squandering of earth's resources. This model insists that our current economic model be suspended and that we provoke ideas that look beyond existing limitations.

*Greater pedestrian mobility.* The suggestion of an alternate pedestrian network begins to ease the burden on our existing ground-plane. The existing street network will forever be slave to the automobile. Therefore, additional horizontal networks will focus on pedestrian and light-rail mobility.

*Heightened access to park and recreation spaces.* The new constructed landscape offers enormous potential 'green spaces.' These spaces are conceived as both densely forested parks



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with pedestrian paths as well as large open surfaces suitable for sporting fields. The constructed landscape serves as an environmental filter creating a symbiotic relationship with the existing concrete jungle.

*Greater programmatic diversity.* Housing and retail are introduced into areas that are predominately commercial. The scale of these proposed forms works to relieve the massiveness of the existing office blocks. Furthermore, an intensified richness is sought through programmatic cross-pollination. By diversifying a piece of the city, there is an attempt to reduce the amount of necessary movement on and off the site. Each piece of the city can become a bit more independent and efficient.

*Communal nodes that begin to create a sense of place.* Public nodes begin to create a sense of orientation once removed from the existing ground-plane. Libraries, schools, churches, and public markets are some of the elements envisioned to occupy and celebrate the nodes. They are attractors for development and serve as connection points to a new pedestrian network. Hence, these nodes can begin to serve as nuclei for community.

*Occupation of right-of-way spaces.* The inhabitation of these spaces can be effective without destroying the quality of light and ventilation below. The proposed forms suggest that urban development is no longer bounded by our roads and infrastruc-



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ture. This thesis encourages insight beyond the limitations of ownership and private property.

This thesis does not present a comprehensive exploration into the concept of density - nor does it try to. Fears of over-crowding are still linked to imagery of the industrial revolution and will not fade in the immediate future. It is only through constant provocation and testing that more dense urban environments will become a reality. The formal strategies presented in this thesis are necessarily radical and controversial. Taken together with conventional processes, it is hoped that these alternate modes of creation can inspire an expanded vision of our cities and their future. We must continue to work towards the creation of convincing environments that trade the reduction of personal space for exciting and rewarding opportunities. An overwhelming social preference for suburban and single family living is a daunting adversary. However, in the face of a potential environmental crises, this thesis urges each of us to reconsider our spatial habits and tendencies by demanding a better inhabitation of that space which we have already claimed.







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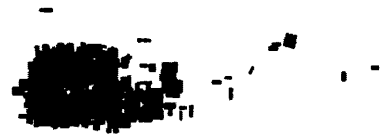
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